

**STANISLAUS COUNTY
GENERAL PLAN
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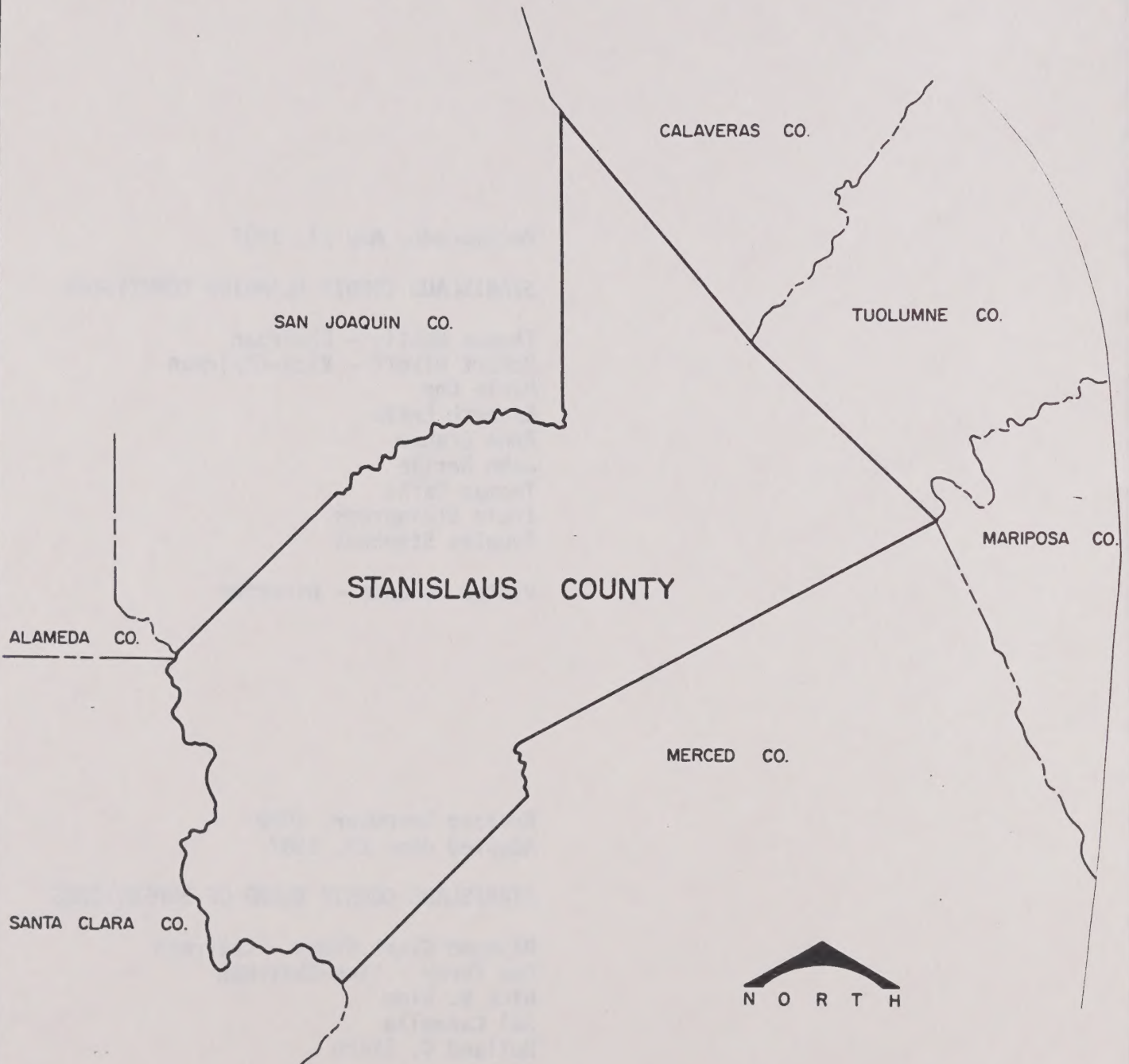


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Chapter I
Land Use

INTRODUCTION

Stanislaus County has adopted Community Plans for most of the unincorporated towns in the County. These plans outline the future growth pattern of the town. Each plan is used in conjunction with the General Plan to indicate whether the Urban Transition area will be residential, commercial, industrial, etc. Any requests for rezoning of property designated Urban Transition on the General Plan must be consistent with the proposed use category on the Community Plan. This Chapter shall include all of the pertinent information on the various towns for which Community Plans exist. Information on the actual adopted Community Plan for each town will be included in the Land Use Element.

The Planning and Zoning Law of the State of California requires each city and county to prepare a general plan consisting of specific individual elements, including land use, housing and circulation. These elements set forth recommendations for solving existing problems and directing the course of future development while at the same time coordinating the time of the development of land and construction of facilities. Most of the required information is set forth in the overall General Plan.

The 1975 Stanislaus County General Plan specified as a priority that staff, the Planning Commission and the Board of Supervisors prepare and adopt detailed community plans to guide development in unincorporated places throughout the County. The Community Plans were originally developed to fill a gap created by the County's use of the Urban Transition designation on the General Plan. The Urban Transition designation is placed on all lands which are within the Sphere of Influence of a City or special district (such as a sanitary sewer district, domestic water district, or community services district) which provides urban services to an unincorporated town. In the case of a city, the city will have adopted its own General Plan which indicates what the future use of that land will be. For an unincorporated town, it is the County's responsibility to make that determination. The Community Plan acts like a city's General Plan in that it indicates whether the Urban Transition area will be residential, commercial, industrial, etc.

Since the policy was adopted, Community Plans have been completed for all communities in the County with the exception of Empire, Grayson, and Valley Home. A plan was also done for the Del Rio area west of McHenry Avenue and north of Ladd Road. Most of the Community Plans have not been updated in 5-10 years as there has been little cause to do so. This update of the General Plan shall include an implementation measure to require updating of all the plans. Although all of the plans have been reorganized for the 1986 update, there have been no substantial changes except in the Salida Community Plan.

The Community Plans are part of the Land Use Element of the overall Stanislaus County General Plan. Information concerning these communities with respect to other elements of the General Plan can be found in those elements.

Since the areas designated Urban Transition on the General Plan are also zoned A-2 (Exclusive Agriculture), this area may contain Williamson Act contracts. Each of the Community Plans will mention if there are any such contracts within its boundary.

The Williamson Act reduces property taxes in return for the guarantee that the property will remain in agriculture for a period of not less than 10 years. Anyone with property zoned A-2 (Exclusive Agriculture) may apply to put their property under Williamson Act Contract (also referred to as a California Land Conservation Contract) and thus reduce the property taxes. The original contract is valid for 10 years with a provision that the contract is automatically renewed every year for one more year. In effect, the contract is valid indefinitely. If a property owner desires to stop this automatic renewal, a "Notice of Non-Renewal" must be signed. The contract then expires between 9 and 10 years after the notice is submitted. There are other methods to end a contract in special circumstances but use of a Notice of Non-Renewal is the only certain method. Lands under Williamson Act Contract that are within Community Plan areas will generally not be available for development for at least 10 years.

-
1. The Spheres of Influence area adopted by the Local Agency Formation Commission (LAFCO) for each city, and special district (including such districts as sanitary sewer districts). The sphere is "a plan for the probable ultimate physical boundaries and service area of a local agency."

POLICIES FOR DEVELOPMENT

Generally, development of an area that is within the sphere of influence of an unincorporated town will occur as it would in a city. A request must be made by the property owner or developer to change the General Plan designation, rezone the property, and, if necessary for development, subdivide the property. The County will review the application in light of the adopted community plan.

Stanislaus County has a "combining" zoning district titled the US (Urban Service) district. This district is used in combination with any other zoning district in the County's Zoning Ordinance to prohibit development until the property can annex to, and receive service from, a sanitary sewer district, domestic water district, or community services district. Any approved rezoning of land within the sphere of influence of a district serving an unincorporated town shall only be approved with the use of the US combining district unless otherwise exempted by the Community Plan.

GENERAL PLAN (COMMUNITY PLAN) DESIGNATION

The Land Use Element of the Stanislaus County General Plan lists all of the General Plan designations used in the County. These same designations will be used in the Community Plans. Occasionally, circumstances applicable to a particular town or situation may warrant a slightly different description or additional refinement of the designation. Only in this type of instance will the designations be further described in individual community plans. Unless so specified, the designations and their compatible zoning designations listed in the Land Use Element shall govern.

CROWS LANDING COMMUNITY PLAN

Description of Crows Landing.

The Community of Crows Landing is located on the west side of Stanislaus County, straddling State Highway 33. Approximately one and one-half miles to the northwest of the town is the United States Naval Auxiliary Landing Field, Crows Landing, which serves as a practice landing field for Navy, Marine, and NASA Research aircraft. The town of Crows Landing is located within an area of long-standing, intense agricultural uses, most of which are orchards or vineyards.

History.

Transportation has played a major role in shaping the history of Crows Landing. Crows Landing was established in the 1850's as a ferry landing on the San Joaquin River for gold miners destined for the Mother Lode. After the initial gold rush was over Crows Landing became a river port for steamers hauling agricultural goods produced in the area to market. But in 1888 when the railroads arrived offering more reliable service than the river steamers could provide, the whole town moved to its present location adjacent to the railroad tracks three miles west of its original site.

Land Use.

The community of Crows Landing consists primarily of single family homes. Along Highway 33 and the Southern Pacific Railroad Tracks are many agricultural warehouses and packing sheds. On the west side of Highway 33 and along 5th Street from halfway between G and H Streets to the highway is the commercial area of Crows Landing. The commercial and industrial areas serve both the community of Crows Landing and the surrounding agricultural area. The Community is ringed with land under Williamson Act Contract. There are only a couple of large parcels not under contract.

Available Urban Services.

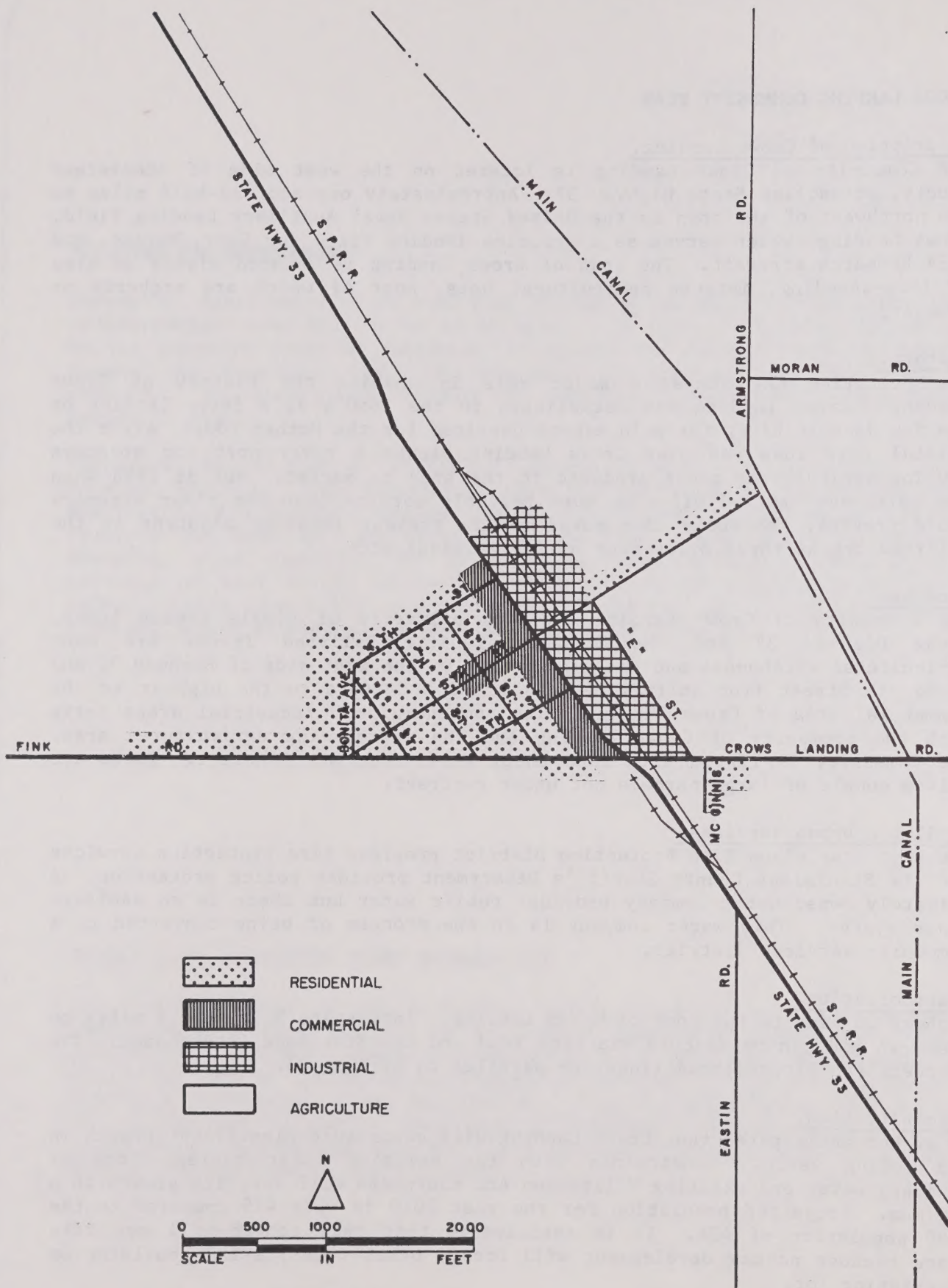
The West Stanislaus Fire Protection District provides fire protection services and the Stanislaus County Sheriff's Department provides police protection. A privately owned water company provides public water but there is no sanitary sewer system. This water company is in the process of being converted to a community services district.

Transportation.

Highway 33 bisects the town of Crows Landing. Interstate 5 is only 3 miles to the west and can be reached via Fink Road and the Fink Road interchange. The Southern Pacific railroad lines run parallel to Highway 33.

Community Plan.

It is not anticipated that Crows Landing will experience significant growth in the coming years. Constraints with the existing water system, lack of sanitary sewer and existing Williamson Act contracts will keep its growth to a minimum. Projected population for the year 2010 is only 475 compared to the 1980 population of 436. It is anticipated that this growth will not take place because no new development will occur, other than possibly building on an existing lot.



TOWN OF
CROWS LANDING

DEL RIO COMMUNITY PLAN

Description of Del Rio.

The community of Del Rio is located approximately four miles north of the City of Modesto directly west of North McHenry Avenue. Del Rio is surrounded by prime agricultural land with the Stanislaus River to the north of the community.

History.

Del Rio began with the development of a golf and country club. In order to help finance a portion of the Country Club, a number of residential lots were developed on the perimeter and sold.

Land Use.

Del Rio is entirely a residential community.

Available Urban Services.

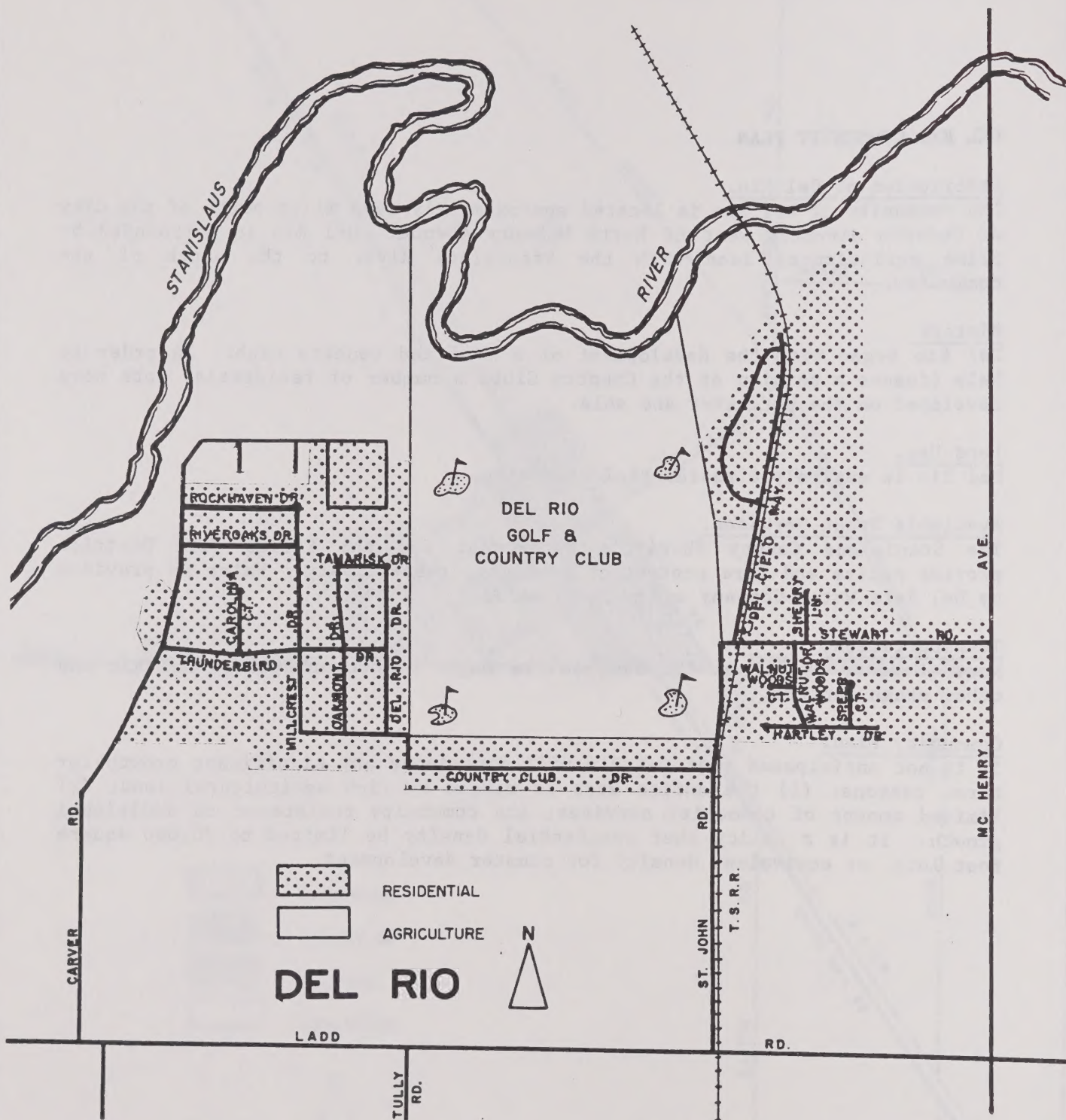
The Stanislaus County Sheriff's Department and the Salida Fire District provide police and fire protection services, respectively. Water is provided by Del Este Water Company and private wells.

Transportation.

North McHenry Avenue on the east is the major connector between Del Rio and other urban centers.

Community Plan.

It is not anticipated that Del Rio will experience any significant growth for three reasons: (1) the entire area is ringed by rich agricultural land; (2) limited amount of community services; and community resistance to additional growth. It is a policy that residential density be limited to 20,000 square foot lots, or equivalent density for cluster development.



DENAIR COMMUNITY PLAN

Description of Denair.

The community of Denair is located two miles east of Turlock. It is bounded by Taylor Road on the north, Turlock Main Canal to the east, Tuolumne Road on the south, and Waring Road to the west.

History.

Denair originally was a Quaker settlement, first called Elmwood Colony and later Elmdale. In the early 1900's, the Modesto Bank subdivided 640 acres at \$40 an acre as a town site. The site was purchased by John Denair who was a superintendent of the Santa Fe Railroad of Arizona, as an investment, and the town's name was changed to Denair. Eventually, Mr. Denair sold his property in small tracts of land to farmers, thereby establishing Denair as a farming community.

Land Use.

The Town of Denair is a relatively compact community with a balance of residential, commercial, and industrial land. It is a small town which has historically served as a focus of activity for residents of the surrounding agricultural area and a bedroom community for Turlock. The surrounding agricultural area consists of intensely farmed parcels. To the east, the relatively flat land transcends into gentle, rolling hills which are primarily suited for grazing. Row crops, orchards, and vineyards are the predominant crops produced in the area in which intensive agricultural operations dominate the landscape.

Available Urban Services.

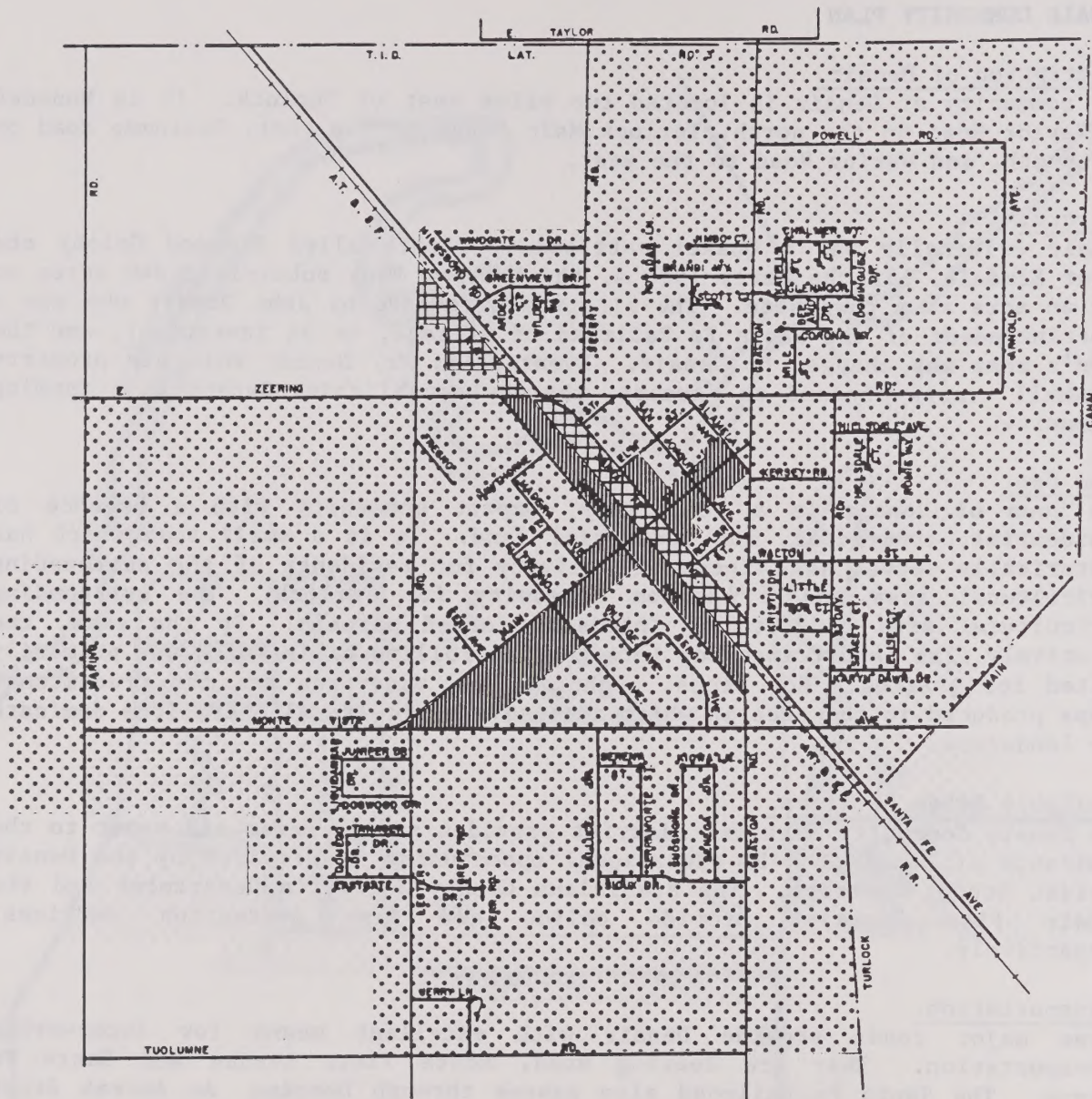
The Denair Community Services District provides public sewer and water to the residents of Denair. K-12 educational opportunity is provided by the Denair Unified School District. The Stanislaus County Sheriff's Department and the Denair Fire District provide police and fire protection services, respectively.

Transportation.

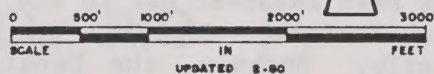
Three major roads provide Denair with excellent means for inter-urban transportation. They are Zeering Road, Monte Vista Avenue and Santa Fe Avenue. The Santa Fe Railroad also passes through Denair. An Amtrak depot in Denair serves the rail needs of south County residents.

Community Plan.

Population growth in Denair has been retarded due to the capacity of the sewer interceptor between Denair and Turlock. Capacity has been reached and to expand the line would be costly. However, the Denair Community Services District is presently pursuing means to finance a second parallel interceptor. If this is successful, sufficient capacity will exist to accommodate the projected 2010 population of 5377. Currently the low density residential development averages just over four units per gross acre. Future low density residential development should not exceed this density.



TOWN OF DENAIR



AGRICULTURE
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

HICKMAN COMMUNITY PLAN

Description of Hickman.

The Community of Hickman is located three miles south of the City of Waterford on the east side of Hickman Road.

History.

The community was built in 1891 as a shipping center for grain upon the extension of the Southern Pacific Railroad from Oakdale to Merced.

Land Use.

Hickman consists primarily of single family homes and commercial uses which service its residents. An industrial use manufactures and repairs mining, construction, and agricultural equipment. The agricultural land surrounding Hickman is used for orchard, dairy and grain farming.

Available Urban Services.

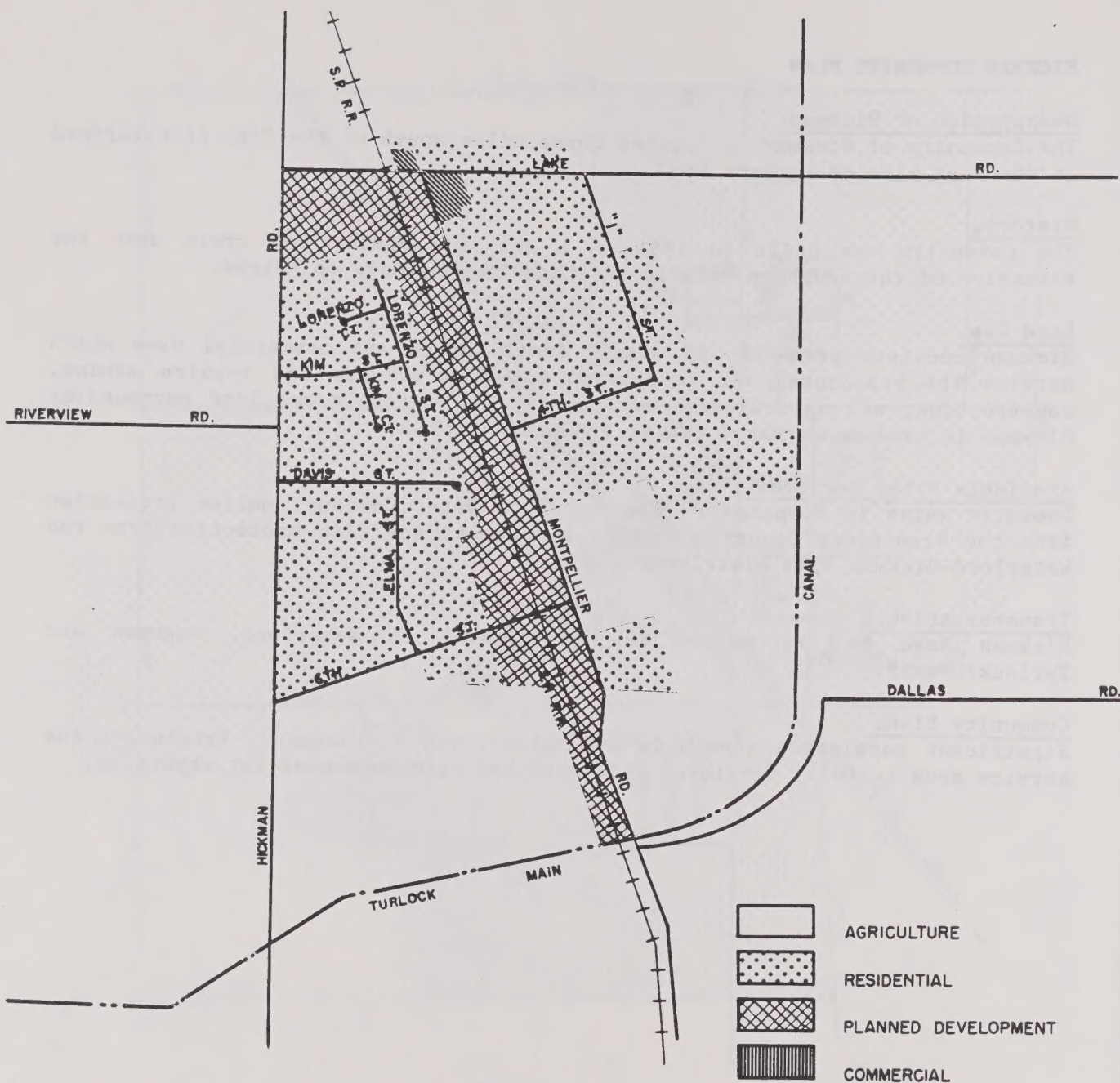
Domestic water is supplied by the Del Este Water Company, police protection from the Stanislaus County Sheriff's Department and fire protection from the Waterford-Hickman Fire District.

Transportation.

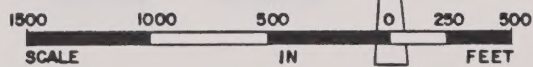
Hickman Road is the major link for travel to Waterford, Hughson and Turlock/Denair.

Community Plan.

Significant population growth is not anticipated in Hickman. Presently, the service area is fully developed and there has been no demand for expansion.



TOWN OF HICKMAN



KEYES COMMUNITY PLAN

Description of Keyes.

Keyes is located in the central portion of Stanislaus County, approximately three miles northwest of Turlock and two miles south of Ceres on State Highway 99.

History.

Keyes originally began life as a railroad siding of the Central Pacific Railroad in about 1871. Landowner Ephraim Hatch donated the needed land to the railroad. The siding was originally named Keyes Switch, after Thomas J. Keyes, a state senator, whose residence was nearby. The Keyes area grew slowly for the remainder of the nineteenth century. The Keyes Grammar School was first established in 1905-1906, at which time there were sixteen families with 39 children in the vicinity. A Methodist Church was built in 1908, across from the school.

This began an era of growth which lasted until the Depression around 1930. During this time melons and other crops were shipped from a total of five warehouse and produce companies. There was a railroad depot in Keyes from 1914 until it was closed in 1931. There was also a creamery from 1913 until it burned in 1918.

After the Depression, growth slowly picked up again. People moved to Keyes from the South during the late 1930's, while others came after the end of World War II. The Keyes Community Services District was formed in 1955. Since that time the District has installed street lights, contracted with Turlock for sewage disposal, and replaced the old water system in 1971. Further improvements in the form of two new wells, were made to the water system in 1982. In 1984, the long-awaited Highway 99 overpass project was started, and the final steps were taken to obtain funding for a new sewer interceptor line to Turlock.

Land Use.

Keyes is a relatively small community of just over 2000 residents. It is basically a residential town, with a limited amount of commercial and industrial uses. Commercial uses are largely limited to those providing services to the community itself. They include, but are not limited to, groceries, insurance, a tire shop, and a drive-in, along with a cabinet shop and a flea market. There is a company distributing safes located in the north part of town, just across from a light industrial Planned Development which contains a number of light industrial type uses. That particular Planned Development is located on the south side of Starlite Drive, former site of an old drive-in theatre.

Aside from the small Starlite Drive light industrial area, there are several other industrial facilities in the Keyes Study Area. One of these is a bulk fuel storage facility located near the south end of town, on the west side of Seventh Street, north of Nunes Road (old Keyes Road). This plant occupies several parcels. It is in a less than ideal location, directly across Seventh Street from the Keyes Elementary School. Both the school site and the fuel facility were established many years ago, prior to any zoning regulations which could have separated these potentially incompatible uses.

At the southeast corner of Highway 99 and Nunes Road the County some years ago approved a PD zone for the truck terminal and materials storage. The PD approval contained a number of development standards to minimize the impacts of this facility. Those standards have not yet been complied with due to some uncertainty regarding the effect of freeway construction on the project. When it was originally approved, trucks using the site took their access directly from Highway 99 via the old Keyes Road. With the new overpass, trucks using the facility will have to use Nunes Road east of the site. This creates the undesirable situation of heavy truck traffic past a route used by Keyes Elementary School students.

A couple of parcels to the east of this truck terminal is a long-established surplus equipment sales yard. This was established prior to the present zoning regulations. Applicable County ordinances do, however require complete screening of this kind of business.

The largest industry in Keyes is located just west of Highway 99, north of the old Keyes Road alignment. This is Berry Seed and Feed, a large producer of agricultural feed products.

Land use surrounding Keyes is largely agricultural, particularly east and west of Keyes. Row crops, orchards and vineyards are all common in this part of the County.

Available Urban Services.

The Stanislaus County Sheriff's Department and the Keyes Fire District provide police and fire protection services, respectively. Keyes Community Services District provides residents with public water and sewage is transferred via an interceptor line to the Turlock Sewer Plan.

Transportation.

State Highway 99 is located on the western limits of Keyes. The Southern Pacific Railroad runs parallel to the highway.

Community Plan.

The Keyes Community Services District estimates that in 1983, the sewer outfall line was carrying approximately 300,000 gallons of sewage daily, serving about 2480 people. Installation of a new 12-inch line to Turlock will increase the capacity to 456,000 gallons per day, enough to accommodate a population of about 3800 (projected to the year 2010). The new line will also have a new pump station, including a dual pumping plant, standby generator, wet well and flow meter.

The flow meter has an important place in this Community Plan. As this plan is being written, there is not an entirely accurate method of measuring the daily sewage flow through the interceptor line to Turlock. The best available information, as provided by the Community Services District, is that the daily flow is, as mentioned above, 300,000 gallons per day. This means that the new line will be able to handle about 165,000 gallons per day above the current flow. At a standard figure of 120 gallons per day per person, this translates into a population of about 3800 persons, and increase of 1314 people. This figure will be used in determining the amount of area which can be devoted to urban uses.

Aside from the amount of sewage already being generated, there are two large residential developments in Keyes which are already approved but not yet developed. These are the 266 unit mobile home park located at Starlite Drive and Faith Home Road, and a 44 lot single-family subdivision on the east side of town. Given the average household size in Keyes of 3.2 persons, these developments could generate up to 155,220 gallons per day. Completion of these projects would leave only about 41,000 gallons per day capacity in the new interceptor line. A typical R-1 single-family residential type of density of four to five units per acre, housing 12.8 to 16 persons per acre, only about 21 to 27 acres of additional land could be served by the District.

Just as the overall capacity of the sewage disposal system limits the amount of development which can occur, the physical location of lines is important in the determination of where development should occur. The Keyes Community Services District has extended sewer lines beyond the District boundaries to serve mobile home parks. These lines lie under Keyes Road and under Faith Home Road. There are presently close to 100 acres of undeveloped land on or near these two roads, between the District boundaries and the mobile home parks to which lines have been extended. Considering the mobile home parks as urban uses would make development of the closer-in lands a form of infilling. This helps to minimize expenses in urbanization, and keeps public costs to a minimum by making efficient use of existing facilities.

Obviously, with only about 21 to 26 acres of available capacity, not all of the land designated to residential use can be developed. Development of only two large parcels could cause the system to reach capacity. However, we believe that a surplus of developable land is appropriate, for several reasons. First, not all land will develop. Some of these parcels will remain unchanged. One, in fact, is presently under a Williamson Land Conservation Act contract. Second, to designate only 21 to 26 acres would commit all the capacity to only a few properties, creating an unfair advantage for those owners.

It will also prevent others who are perhaps desirous of immediate development from doing so, by committing the capacity to land which may never be developed.

Another factor, one which is very important, is that the figures on which the plan is based are estimates of current flow, not actual measurements. It is possible that, once the new facilities have been installed, the flow meter will show a different figure. If a lower flow is occurring than the estimate, additional development of the residentially developed areas can occur. Should, for any reason, either of the two already approved projects fail to develop, the capacity reserved for them could be used to build residences on other property designated for residential use.

The Planned Development designation on the Keyes Community Plan is a key element of the plan. It is used for land which is ultimately suitable for commercial or light industrial development, provided the County is able to review the uses on an individual basis to ensure that they will be appropriate for the area. The Planned Development designation on the Keyes Plan is intended to permit commercial and industrial uses, excluding any uses which the County determines use substantial amounts of water or generate significant sewage flow. The plan encourages connection to public water supply but allows use of septic sewage disposal systems, provided that all such proposals comply with all requirements of the County Department of Environmental Resources. The policy will allow commercial and industrial uses to development in a safe manner, and will not use sewer system capacity.

This Planned Development designation recognizes that some proposed uses in the PD area could conceivably be connected to the sewage system without adversely affecting the overall capacity. Such uses could generate very limited amounts of sewage, or could be designed to bleed it into the system at nonpeak hours. Such uses proposing to connect to the sewer system can be permitted provided they satisfy the Board of Supervisors, the Keyes Community Services District and the County Department of Environmental Resources, that they will not adversely effect the ability of the sewer system to serve residential areas.

While acknowledging the existence of mobile home parks and other residences within the PD area, new residential developments will not be considered consistent with this designation. The Planned Development areas are so located as to allow a wide range of commercial and industrial uses which may not be appropriate in the town proper, adjacent to residential uses. The requirement that all uses be developed as a PD rezoning will allow the County to minimize land use conflicts, both within the Planned Development area and adjacent to it. This two fold purpose is important to protect residents of mobile home parks within the area as well as adjacent residences.

The Planned Development area is extensive, stretching from just south of Redwood Road, east of Highway 99 at the north, southward between Faith Home Road and the Southern Pacific Railroad and Berry Seed and Feed west of Highway 99. It goes as far south as the new Keyes Road overpass, extending from one end of the new road alignment to the other.

The north area is located both inside and outside the ultimate boundaries of the Community Services District. There are already two properties zoned PD within the area, and several other properties with commercial uses on them. This designation acknowledges those uses, and allows new uses to be established after a case by case review.

The remaining area designated Planned Development is within the ultimate Community Services District Boundary. Provided they do not generate a need to use sewage system capacity, applications for various commercial and light industrial uses will be deemed compatible with this plan. Individual PD requests will be reviewed for possible impacts on the surrounding area. Where possible, the PD will contain Development Standards to mitigate these impacts. However, developers should be aware that uses which cannot be adequately mitigated may find their use cannot be approved. Land designated Planned Development will be zoned A-2 (Exclusive Agriculture) until a PD rezone is approved.

CITY of CERES URBAN TRANSITION

RESIDENTIAL DENSITY

LOW

MEDIUM

MEDIUM/HIGH

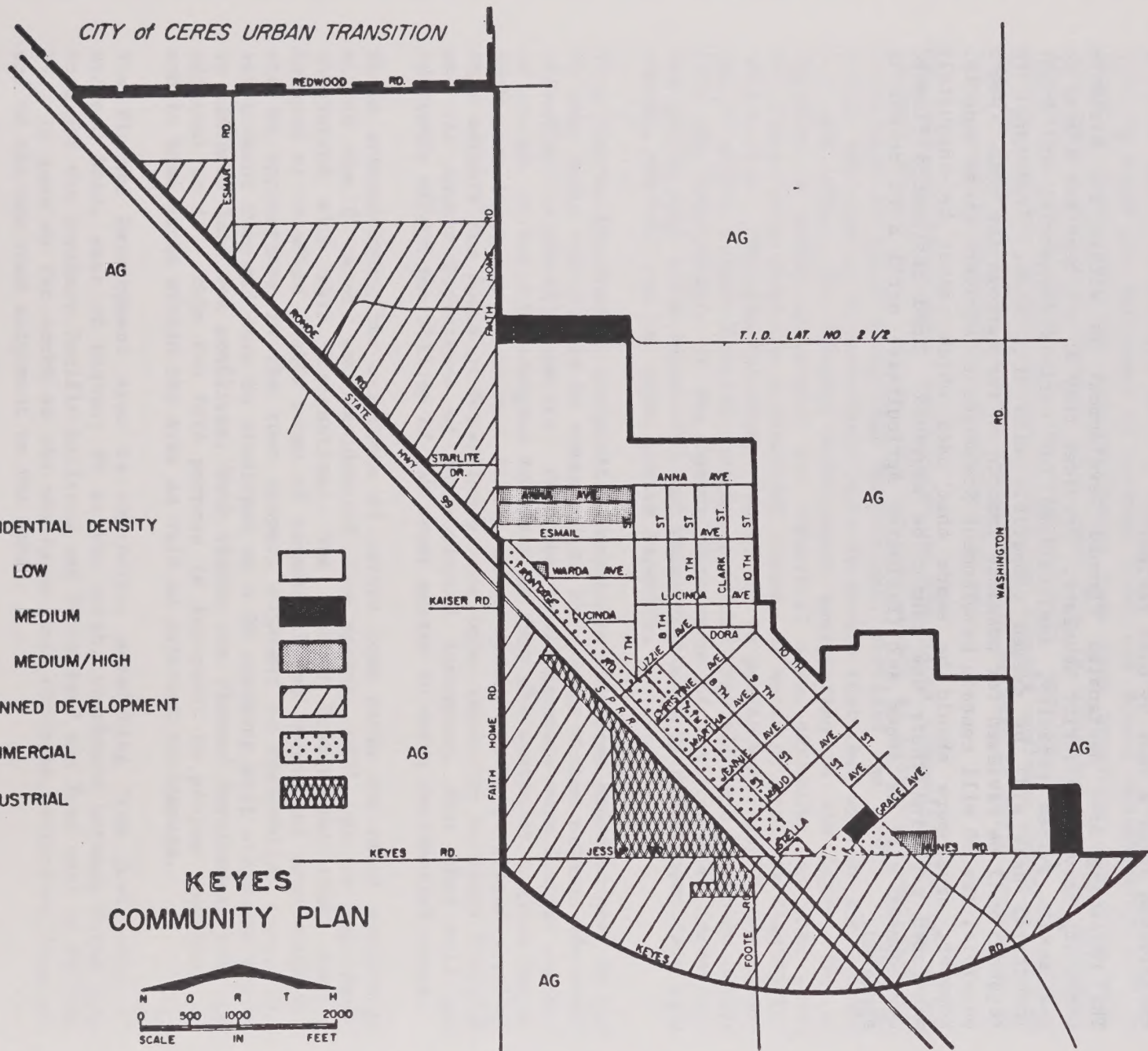
PLANNED DEVELOPMENT

COMMERCIAL

INDUSTRIAL



KEYES
COMMUNITY PLAN



KNIGHT'S FERRY COMMUNITY PLAN

Description of Knight's Ferry.

The community of Knight's Ferry is located on the east side of Stanislaus County on the north bank of the Stanislaus River. It lies just north of the intersection of State Highway 108/120 and Kennedy Road.

History.

Land within Stanislaus County north of the Stanislaus River was, until 1860, part of San Joaquin County. At that time Stanislaus County Supervisors recognized that the community of Knight's Ferry was prosperous and booming. Therefore, to add to the tax revenue of the County, an assembly bill was introduced and signed annexing that portion to Stanislaus County.

In 1862, Knight's Ferry became the seat of government for Stanislaus County and remained so for nine years. During this period the community enjoyed steady growth and flourished with economic activity. With the decline in mining, ravages of fire, changes in transportation, and relocation of the County seat to Modesto, Knight's Ferry became a sleepy hamlet steeped in history and character.

Knight's Ferry is recognized both state and nationwide. In California it is Registered Landmark Number 347 and in December, 1975 it was designated a National Historic Landmark and listed in the National Register of Historic Places.

Land Use.

Knight's Ferry consists predominantly of older single family residences with some older commercial and fraternal structures. Large parcels to the north of the community are under Williamson Act contracts.

Available Urban Services.

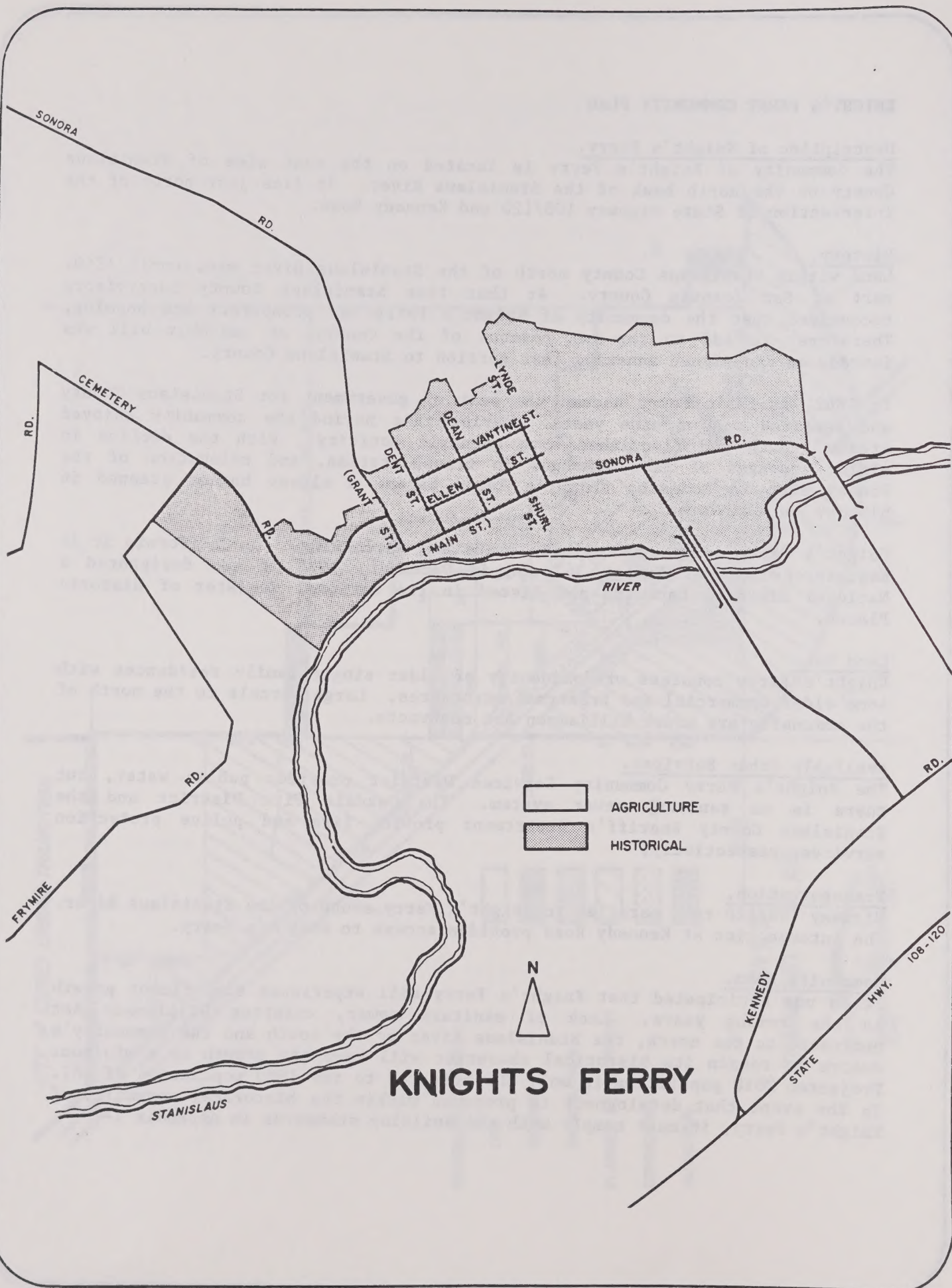
The Knight's Ferry Community Services District provides public water, but there is no sanitary sewer system. The Oakdale Fire District and the Stanislaus County Sheriff's Department provide fire and police protection services, respectively.

Transportation.

Highway 108/120 runs parallel to Knight's Ferry south of the Stanislaus River. The intersection at Kennedy Road provides access to Knight's Ferry.

Community Plan.

It is not anticipated that Knight's Ferry will experience significant growth in the coming years. Lack of sanitary sewer, existing Williamson Act contracts to the north, the Stanislaus River on the south and the community's desire to retain its historical character will keep its growth to a minimum. Projected 2010 population is only 300 compared to the 1980 population of 281. In the event that development is proposed within the historical community of Knight's Ferry, it must comply with the building standards in Appendix I-1.



LA GRANGE COMMUNITY PLAN.

Description of La Grange.

The community of La Grange straddles Yosemite Boulevard (State Highway 132 on the south bank of the Tuolumne River in the most easterly portion of Stanislaus County. The town of La Grange is located within an area of limited base (grazing and range land) agriculture.

History.

In the early 1850's, flooding along the Tuolumne River encouraged the inhabitants of French Bar to seek higher ground. The new community became known as La Grange, which is French for "the barn". In 1856, La Grange became the third location for the seat of Stanislaus County government and remained so for six years. The two major industries that have long been idle were mining and the Elam Dye sawmill. La Grange has been recognized as having State historical significance, therefore, is noted as a California State Registered Landmark.

Land Use.

La Grange consists of older single family residences and commercial structures, variously mixed throughout the community.

Available Urban Services.

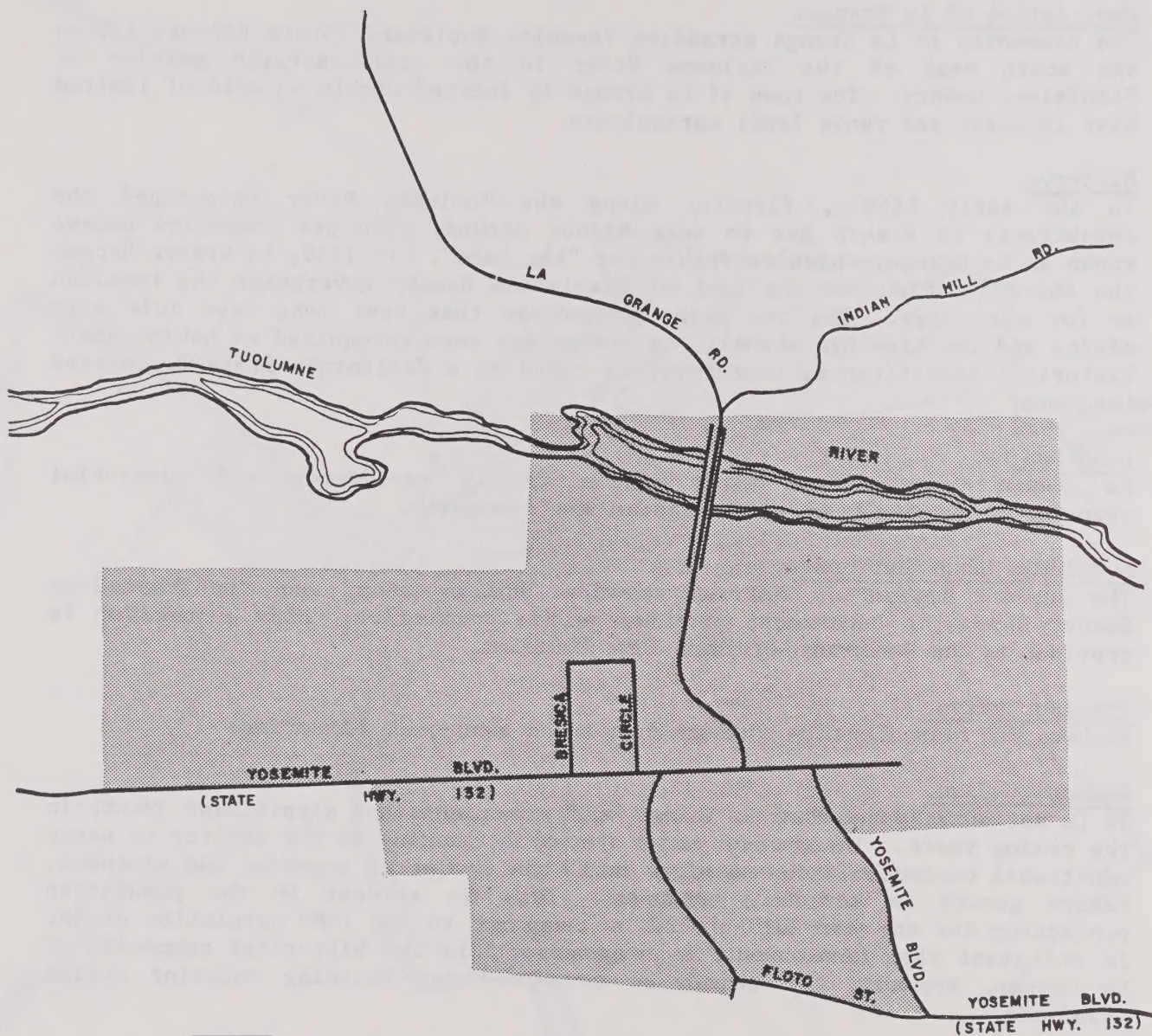
The Turlock Irrigation District provides public water, and the Stanislaus County Sheriff's Department provides police protection. Fire protection is provided by the Waterford-Hickman Fire District.

Transportation.

Highway 132 runs directly through town in an east-west direction.

Community Plan.

It is not anticipated that La Grange will experience any significant growth in the coming years. The present water system is lacking in the ability to serve additional customers, consequently, until the system is upgraded and expanded, future growth is seriously retarded. This is evident in the population projection for the year 2010 of 112 as compared to the 1980 population of 88. In the event that development is proposed within the historical community of La Grange, Appendix I-2 should be consulted for building exterior design standards.



-  AGRICULTURE
-  HISTORICAL



LA GRANGE

SALIDA COMMUNITY PLAN

Description of Salida.

The town of Salida is located in the northern portion of Stanislaus County less than one mile northwest of the City of Modesto on State Highway 99. Salida is located within an area of longstanding, intense agricultural uses, most of which are orchards and vineyards.

History.

In 1865, John Murphy established Murphy's Ferry as a crossing on the Stanislaus River approximately one mile upstream from the current Highway 99 bridge crossing. When the Central Pacific Railroad built their railroad line from Lathrop to Modesto in 1870, John Murphy granted the railroad the right-of-way over his property. In 1871, Mr. Murphy built a warehouse and a side track on the site of present-day Salida. This siding, called Murphy's Switch, was the first shipping point established in Stanislaus County.

In 1875, a post office was built at Murphy's Switch. The post office service would not allow the station to be called Murphy's as originally proposed because there was already a well-known town by that name in the foothills. After some controversy the name was changed to Salida. Accounts differ as to the meaning of the name "Salida". One account says that the name means "near the water" because it was the town nearest the Stanislaus River. Other sources say the name derives from the Spanish word meaning departure because the station was obviously a place from which to depart.

In A History of Stanislaus County With Illustrations by L. C. Branch, published in 1881, Salida is described as "a small railroad town,...situated near the Stanislaus River, between Modesto and Lathrop, on the land of John Murphy, another one of the large farmers of the county. There are two large warehouses here, a post-office, a restaurant, and a blacksmith shop. One of the most prosperous sections of the county surrounds it. A church was established here a few years since; there is a public school also. Land has advanced in this vicinity from thirty to fifty percent within the last two years. The neighborhood contains many families of wealth and culture."

When, in 1908, the wheat land in the area of Salida began to break up and sell in small parcels, David Curtis laid out 40 blocks as the town of Salida. He donated land for a school, a women's improvement club, a church, and a railroad passenger depot. He constructed a store, livery, blacksmith shop, butcher shop, and a hotel as well as starting the first water system. In 1936, C. A. Brian of Ripon started a weekly paper in Salida called the Salida News. Salida grew steadily since that time with no major changes.

Land Use.

At the present time, Salida is a fairly small community of about 3,500 residents. With the build-out of the Mello-Roos project, the population is estimated to be 13,000. Although Salida is largely a residential community, there are several significant areas for commercial and industrial development. The commercial core of Salida stretches along Salida Boulevard (old Highway 99) and Broadway Avenue. The industrial areas are located along Pirrone Road, north of Kiernan Avenue, and along Sisk Road, south of Kiernan Avenue. Most of the Pirrone Road area is undeveloped at this time.

Land use in the surrounding area is almost totally agricultural with scattered dwelling units. The agricultural area is largely devoted to long-term agricultural uses such as orchards and vineyards. The remaining agricultural area is in row crops, field crops and dairies. There are a couple of parcels of pasture, but this does not represent much acreage. The City of Modesto adjoins the urban uses in Salida to the southeast.

Public Facilities and Services.

Utilities and services available in a community play an important role in the potential development of an area. Facilities such as police, fire, water, sewer, schools, street lighting and streets/highways largely determine how, when or if a community will develop.

The fact that these facilities affect growth suggests a need for careful planning in order to minimize the potential for future problems. Coordinating facilities and land use decisions is an important part of an overall planning program. It is, therefore, the main component of this community plan. Expansion will be controlled by availability of services since an adequate water supply, sewer capacity, etc. is needed.

Water Service

Salida's first community water system was started about 1912 by Curtis Estates. In 1942, the system was purchased by the Del Este Water Company which still provides service to Salida.

Since taking over the operation of the system, Del Este has expanded and upgraded the water system by replacing undersized and deteriorated lines with new and larger mains, eliminating dead end lines, and installing lines to serve new users.

Water supply in the Salida area is of sufficient quantity to ensure an adequate supply to the people of Salida for the next several years. Discussions with Del Este indicate no problems in expanding to serve additional area which may be included in the Salida Community Plan. Generally, developers pay for expansion. Anyone wanting to develop property will be required to pay for improvements to the system that would be necessary to serve the new development. If the developer, in order to obtain service for his development, must drill a well that exceeds the necessary capacity or must extend lines that would be sized to serve other properties as well, he would be reimbursed over a period of years for that portion of the cost for domestic water attributable to oversizing.

Sewer Service

Sewer services have been provided to the town of Salida by the Salida Sanitary District since 1952. By 1981, the district was providing service to a 285-acre area. As a result of the Mello-Roos project, the district has been expanded to approximately 1,200 acres.

The expanded sewer system will adequately serve the entire community plan area boundary.

School District

The Salida Union School District, located in the northwest portion of the County, covers a rather large area, including Salida. Two elementary schools currently serve this district.

Both the Salida Union Elementary School, located on Finney road in Salida and the Mildred Perkins Elementary School on Blue Bird Drive in the City of Modesto, are experiencing increasing enrollments. Two new elementary schools are planned to be built with Mello-Roos funds as the area grows. The sites are located on Finney Road, north of New Road A, and Murphy Road, east of Finney Road.

Other Urban Services

The Stanislaus County Sheriff's Department provides police protection. The size of the County precludes the feasibility of providing constant law enforcement to all areas. Although the sheriff's department systematically patrols the unincorporated towns, the scattered locations of these and their small size make it difficult to provide efficient, routine patrols. A County Service Area has been formed to provide additional sheriff patrols for the Mello-Roos area. An annual assessment will be included for those residents within this area. The Salida Fire Protection District provides fire protection services. The district is staffed entirely by volunteers. There are approximately forty volunteer firemen and an elected fire chief. A paid, full-time staff rather than volunteer department would be beneficial to its residents and lower the fire rating of the area. Street lights are installed in most areas of the town and are under the jurisdiction of the Salida Highway Lighting District. Street maintenance is provided by Stanislaus County Public Works Department.

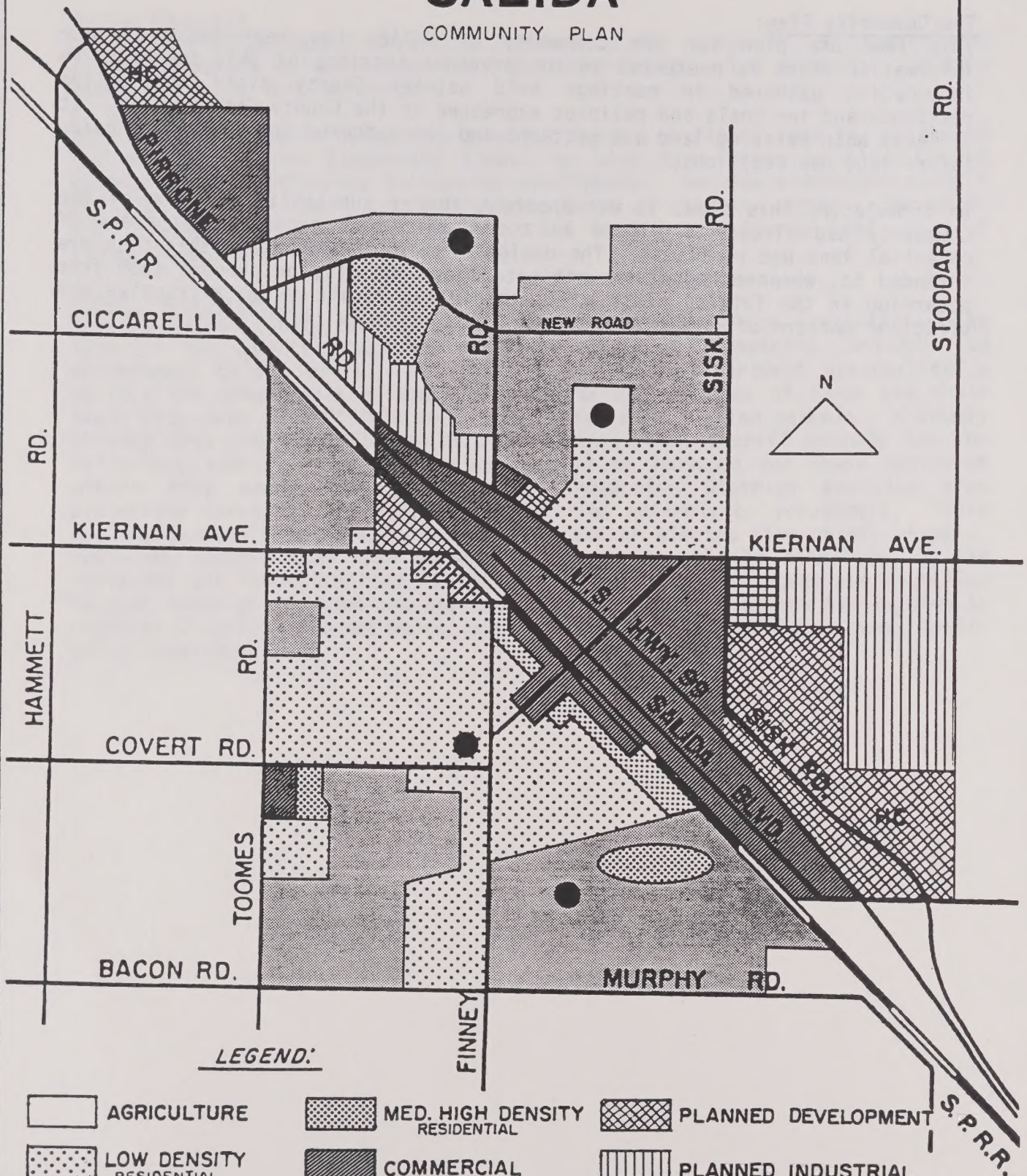
The Community Plan:

This land use plan for the community of Salida has been based on the information which is presented in the previous sections of this document, on information gathered in meetings held between County staff and Salida residents and the goals and policies expressed in the County General Plan. It reflects both existing land use patterns and the gathered information to guide future land use decisions.

In formulating this plan, it was apparent that a substantial portion of the community had already developed in a way which has produced few areas of potential land use conflicts. The designations included within this plan are intended to, whenever possible, mitigate those impacts, or prevent them from occurring in the future. This will, hopefully, result in an attractive and efficient pattern of living and working areas.

SALIDA

COMMUNITY PLAN



LEGEND:

- | | | |
|--|---|---|
|  AGRICULTURE |  MED. HIGH DENSITY RESIDENTIAL |  PLANNED DEVELOPMENT |
|  LOW DENSITY RESIDENTIAL |  COMMERCIAL |  PLANNED INDUSTRIAL |
|  LOW DENSITY RESIDENTIAL (WITHIN PROJECT BOUNDARY) |  INDUSTRIAL |  SCHOOL SITES |
|  MED. DENSITY RESIDENTIAL |  HC HIGHWAY COMMERCIAL | |

WESTLEY COMMUNITY PLAN

Description of Westley.

Westley is located on the westside of Stanislaus County at the intersection of Highway 33 and Grayson Road within an area of long-standing, intense agricultural use.

History.

In 1888 land was sold to the Pacific Improvement Company for the development of Westley. This company was the land development branch of the Central Pacific Railroad. When the railroad was built, a slow exodus of people and businesses from Grayson began populating the new community.

Land Use.

Westley consists primarily of single family homes. The Stanislaus County Housing Authority operates a complex of residences designed for low income and seasonal agricultural laborers. Along Highway 33 and the Southern Pacific Railroad are agricultural warehouses and packing sheds. On the west side of Highway 33 from Howard Road to "E" Street is the commercial area of Westley. The commercial and industrial areas serve both the community of Westley and the surrounding agricultural area. The community is adjacent to properties contracted by the Williamson Act. However, there are some parcels south of Howard Road not under this obligation.

Available Urban Services.

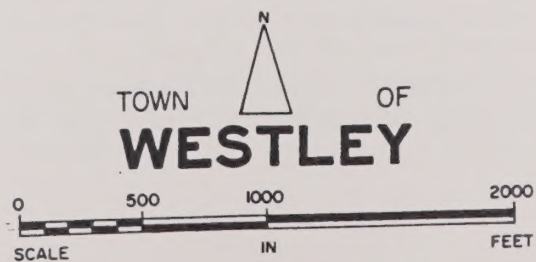
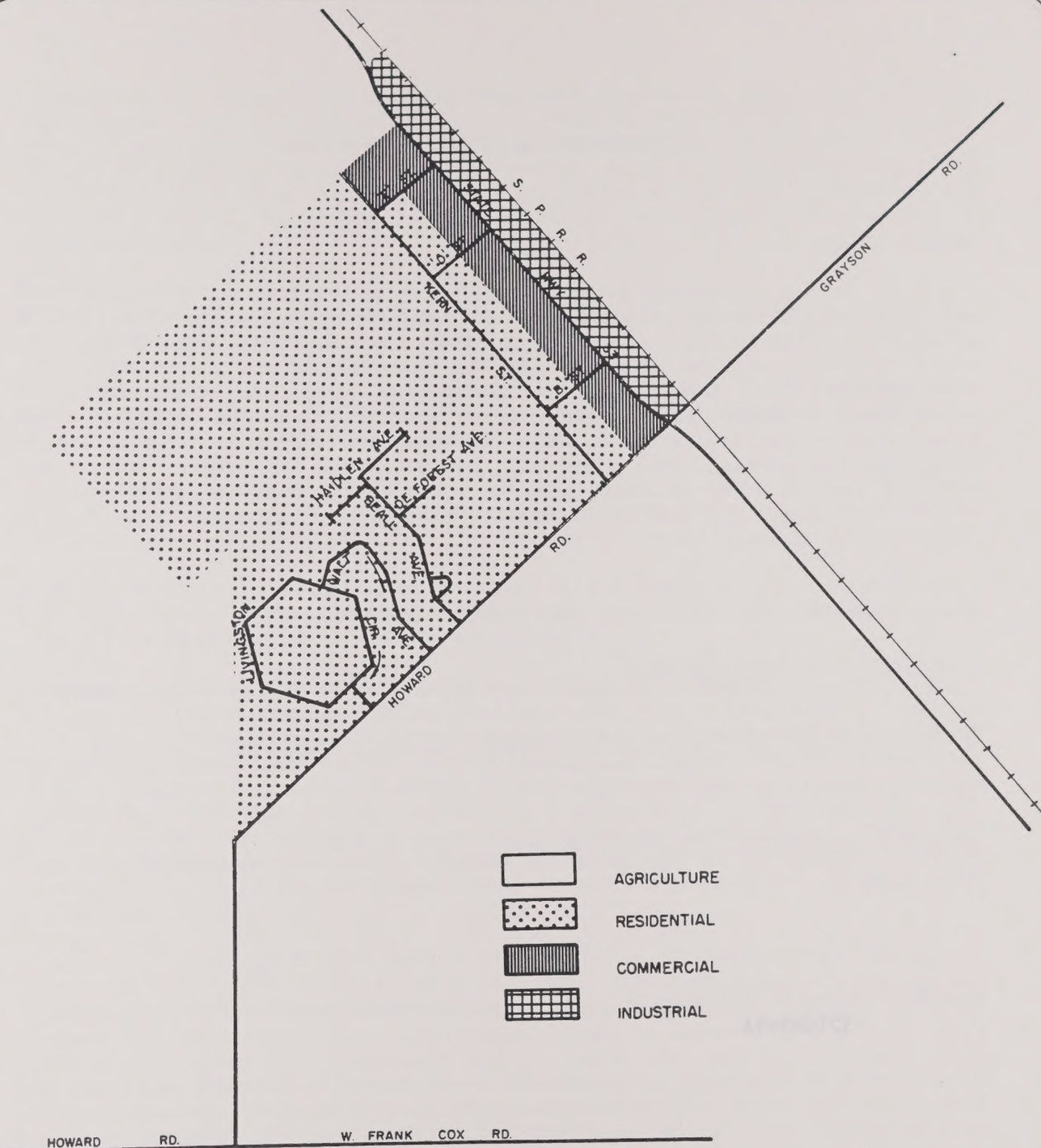
The Westley Fire Department provides fire protection to the community and surrounding rural area. The department is a volunteer group with the fire department building located within the community. Fire hydrants are located throughout the urbanized area. The Stanislaus County Housing Authority operates a sewage treatment facility which services the Housing Authority complex and provides sewer service to the Community Services District on a contract basis.

Transportation.

Highway 33 bisects the town of Westley. Interstate 5 is only three miles to the west and can be reached via Howard Road and the McCracken Road interchange. The Southern Pacific railroad runs parallel to Highway 33.

Community Plan.

Westley could experience significant growth in the coming years. Projected population within the Community Services District by the year 2010 is 740. The sewage treatment facility can serve an approximate capacity of 1115. However, until a public water system is available, growth will be kept to a minimum. Existing Williamson Act contracts will restrict the expansion of the current district boundary.



INTRODUCTION

The purpose of this report is to provide a comprehensive overview of the current state of research in the field of artificial intelligence. The report is organized into several sections, each focusing on a different aspect of the field. The first section discusses the history of artificial intelligence, while the second section focuses on the current state of research. The third section discusses the challenges facing the field, and the fourth section discusses the future of artificial intelligence.

The first section of the report discusses the history of artificial intelligence. It begins with a brief overview of the field's origins, and then discusses the major milestones in its development. The second section focuses on the current state of research in the field. It discusses the major areas of research, and the progress that has been made in each of these areas. The third section discusses the challenges facing the field. It discusses the major challenges, and the progress that has been made in addressing these challenges. The fourth section discusses the future of artificial intelligence. It discusses the major trends in the field, and the progress that has been made in addressing these trends.

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APPENDICES

APPENDIX I-1

KNIGHTS FERRY HISTORICAL STANDARDS

INTRODUCTION

Knight's Ferry's colorful historic past, along with its unique physical setting, have combined to offer a community worthy of preservation. The primary objective of this section is to develop a base of information relating to the architectural and physical setting that will adequately describe the existing situation and to provide guidelines for new construction and rehabilitation which will assist the Planning Commission and Board of Supervisors when evaluating future construction in the Knight's Ferry historical designation, thus preserving and enhancing the unique historic and physical setting. The ultimate goal of this plan is to assure that Knight's Ferry's heritage will remain a functioning asset to the community through continued use and enjoyment.

The Historic Section is grouped into three categories:

Inventory of Building Details

Identifies the predominant architectural details found within the community.

Suggested Design Principles and Standards for New Construction

Intended to ensure the maximum compatibility of new construction with older buildings utilizing the Inventory of Building Details as a data base.

Suggested Guidelines for the Rehabilitation of Buildings

Specific actions to be considered or avoided to ensure the ongoing historic preservation.

Inventory of Building Details

While no single architectural style predominates in Knight's Ferry, there does exist strong similarities of style, proportion, scale, material, and detail. These similarities form the basis of this inventory. This inventory will be helpful in understanding the architectural qualities of Knight's Ferry and, in turn, will establish a good foundation for new planning and construction in the community.

The streetscapes of Knight's Ferry display a variety of design and texture limited by several common "design elements". These elements are **height, proportion and scale, window and door openings, building placement, materials and details, entrances, continuity of street facades, color, and landscaping.**

Height: The average height of the older residences and commercial buildings is 2 to 2 1/2 stories consisting of a groundfloor, one main story, and sometimes additional attic rooms.

Proportion and Scale: The heights of most buildings in Knight's Ferry are generally at least one and half times as great as their widths. The primary emphasis is consequently vertical. Scale, which is the relationship of the size of individual parts to one another and to man, is gauged by the building units (wood or stone), the window and door openings and their placement, and the architectural detailing. Most buildings in Knight's Ferry have a consistent scale.

Window and Door Openings: Window and door openings are vertical, reflecting the overall proportions of the buildings.

Entrances: Door openings are placed at the ground floor level, reached by a short flight of stairs. Entrances are sheltered by a porch usually extending across the entire frontage of buildings.

Materials and Details: Horizontal wood siding is extensively used in the community. The majority of buildings have steep gable roofs covered by corrugated metal roofing material.

Building Placement (Spacing of Buildings): The streetscapes in Knight's Ferry are composed of a rather random progression of building units. Large lots and vacant lots create voids in the streetscape.

Continuity of Street Facades: Buildings along Main Street are set back a uniform distance creating a close feeling. Buildings along side street are setback at random distances. Stone retaining walls create narrow streets with no curbs, gutters or sidewalks.

Landscaping: Abundant natural vegetation and landscaping are integral parts of the Knight's Ferry setting, enhancing existing buildings by creating a "grown in" feeling and acting as natural air conditioners. Most yards utilize a combination of fruit and shade trees, shrubs and fences for defining lots and private space.

Color: Most buildings tend toward low intensity shades of white and gray, weathered wood, and redwood stain. Stone work is left natural. Roof coverings are generally galvanized metal or composition roofing in grey shades.

When combined with the "design elements", building components such as window and door openings and specific details such as building materials and unique building features help to identify the character unique to Knight's Ferry. The components and details include **building lot, exterior features of buildings, roofs, windows and doors, porches, ornamentation, benches, and street furniture and improvements.**

Building Lot: Most of the residential structures are constructed on relatively large lots sloping towards the river. However, very little cut and fill has taken place, relying entirely on low retaining walls constructed of sandstone, stone, river cobbles, or concrete for slope stability. Large trees, shrubs, and gardens are common due to the relatively large area of the lots.

Exterior Features of Buildings: Exterior wall covering consists of horizontal wood siding which is either beveled  or shiplap type  giving a semi-rough texture to wood structures. Masonry buildings are constructed primarily of sandstone or river cobbles, giving them a rough texture. Exposed foundation walls are constructed of stone or concrete adding another textured surface to the exterior appearances.

Roofs: Gables with relatively steep roofs predominate throughout the community. Vents are found in the apex of the gable. Although the original roofing materials were wood shingles, galvanized metal is the most commonly used roofing material today with some buildings utilizing gray composition roof tiles.

Windows and Doors: Window and door openings tend to create a vertical dominance. Windows generally are 2 to 2 1/2 times as tall as they are wide extending nearly from floor to ceiling. Exterior framing around window openings is of light construction. Windows are wood frame double hung, having been added at a later date for unknown reasons.

In residential structures, the main entrance is a single door with some glazing in the top half. Wood screen doors are extensively used. Commercial and public buildings have double doors at the main entrance with glazing in the top half. Screen doors are not commonly used.

Porches: Porches are an integral portion of the overall design of residential, commercial and public buildings. Porches normally extend across the front of the building. Support for porches is provided by 4 x 4 or 6 x 6 posts, sometimes having been given design by being turned on a lathe. The size of the supporting posts is indicative of the light frame construction utilized for almost all buildings. Flooring for the porches is wood.

Ornamentation: Buildings tend to be of simple design with very little ornamentation. Most ornamentation is found on accessories such as door knobs and fences.

Fences: In addition to having the most ornamentation of any structure, fences are an important building accessory in Knight's Ferry. Both wood picket fences and cast-iron post and wire fences set upon stone retaining walls or curbing are prevalent in the community. Wood fences have posts with caps and pickets with a design cut into their top. Posts in cast-iron are capped by various knobs and foliate their top. Posts in cast-iron are capped by various knobs and foliate designs. The wire in these types of fences have a woven design with scalloped top wire. The fences are very light and at times delicate, enclosing the entire yard without obscuring the buildings behind them.

Street Furniture and Improvements: All streets in the community, except Main Street, are narrow streets. Sidewalks, curbs and gutters are not found in Knight's Ferry. The Combination of narrow streets and lack of curbs and gutters add to the quaint character of the community which can be distinctively termed "Knight's Ferry".

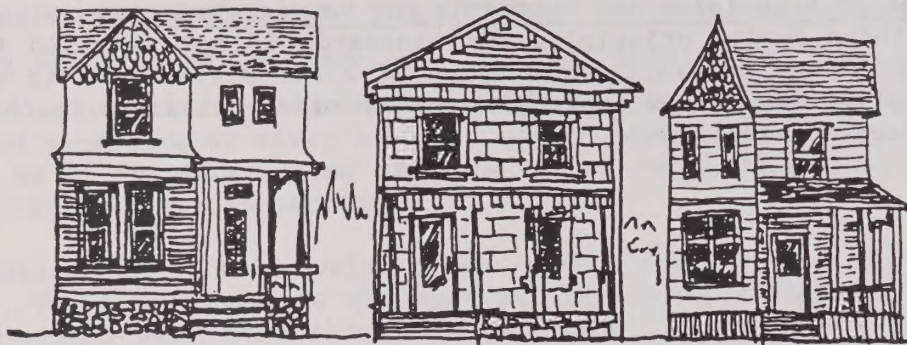
Suggested Design Principles and Standards for New Construction

The use of these design principles and standards is not intended to require new buildings to be an exact duplication of older styles, but to ensure the maximum compatibility of new construction with other buildings in the Knight's Ferry historical designation.



Height and Scale. It is important that new buildings should be constructed to a reasonable average height of existing adjacent buildings within established historical districts.





Relationship of Materials. A variety of materials, when properly used, can add to the distinctiveness of the area. Common materials are wood, stone, brick, stucco, or other materials. Used properly, materials can enhance desired qualities such as compatibility, continuity, similarity, harmony, etcetera.

Relationship to Textures. The texture of a building is an important factor in the overall appearance of the town. The predominant texture is horizontal wood siding with rough (river cobbles), smooth (stucco) and other textures present. Whatever texture is used, its appearance must be considered in relationship to the area to ensure a compatible blending with other styles.

Relationship to Colors. The proper application of a color scheme to a building or a series of buildings can highlight important features and increase their overall appearance. Accent or blending colors on building details is also desirable in enhancing the compatibility of structures.

Relationship of Architectural Details. Similarity of architectural detail may be accomplished by the use of cornices, lintels, arches, wrought iron work, chimneys, etcetera. This similarity of detail is extremely important in ensuring a compatible appearance in new construction.



Relationship of Roof. The majority of buildings have gable or hip roofs. Roofs are an important factor in the overall design of a building to help relate items such as height and scale to those of adjacent structures.



Rhythm of Spacing of Buildings on Street (Building Placement). Moving past a sequence of buildings, one experiences a rhythm of recurrent building masses to spaces between them. This rhythm is necessary to create an added element of harmony in the town's architecture.



Directional Expression of Front Elevations (Window and Door Openings).

Structural shape, placement of openings, and architectural details should give a predominantly vertical character to the building's facade. Although the front elevation of two adjacent buildings may be different in heights, mass, or both, their overall appearance can be compatible when a vertical direction is achieved by proper use of detail, color, materials, etcetera.



Continuity. Physical ingredients such as wood fences, wrought iron fences, brick walls, evergreen landscape masses, building facades, or combinations of these form continuous, cohesive walls of enclosure along the street. This factor helps produce a cohesiveness in an area.

Relationship of Landscaping. There is a predominance of a particular quality and quantity of landscaping. the concern here is more with mass and continuity. It is important that landscaping be placed to emphasize design rather than becoming an obscuring factor.

Suggested Guidelines for the Rehabilitation of Buildings and Structures.

Although Stationary, structures are not static. It is necessary that they function today as they functioned a century ago and, indeed, should function a century hence. Change is inevitable. As structures age, they need maintenance and repair or alteration to accommodate new occupants and uses. This maintenance and change should be a compromise between yesterday and today to insure the architectural integrity of the structures and at the same time to enhance their utility. This category seeks both ends.

The following eight fundamental concepts can be considered basic guidelines for the rehabilitation of historic property. They are followed by a detailed checklist for the application of the guidelines to carry out actual rehabilitation projects. The checklist suggests specific actions to be considered or avoided to insure the ongoing preservation of historic property.

1. Every reasonable effort should be made to provide a compatible use for historic property which will require minimum alteration to the property and its environment.
2. Rehabilitation work should not destroy the historic character of the property and its environment. The removal or alteration of any historic material or architectural features should be held to the minimum consistent with the proposed use.
3. Deteriorated architectural features should be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of original features, substantiated by physical or pictorial evidence rather than on conjectural designs or the availability of architectural features from other properties.
4. Distinctive stylistic features or examples of skilled craftsmanship which characterize older structures and often predate the mass production of building materials, should be treated with sensitivity.
5. Changes to the property and its environment which have taken place in the course of time are evidence of the history of the property and the town. These changes may have developed significance in their own right, and this significance should be recognized and respected.

6. All historic property should be recognized as a product to its own time. Alterations to create an earlier appearance should be discouraged.
7. It is not the intent of these guidelines to discourage contemporary design of new buildings, additions to existing buildings, or landscaping in historic districts if such design is compatible with the size, scale, color, material, and character of the neighborhood, building, or its environment.
8. Wherever possible, additions or alterations to historic property should be done in such a manner that if they were to be removed in the future, the essential form and integrity of the original property would be unimpaired.

CHECKLIST FOR THE APPLICATION OF BASIC GUIDELINES

These guidelines suggest specific actions which should be considered or avoided when remodeling or restoring existing structures.

CONSIDER

TRY TO AVOID

Knights Ferry

Retaining distinctive features such as the size, scale, mass, color, and materials of buildings, including roofs, porches, and stairways that give the town its historic character.

Introducing new construction or materials into the town which are incompatible with the character of the town because of size, scale, color and materials.

Using new plant materials, fencing, walkways and street furniture which are compatible with the character of the town in size, scale, material, and color.

Introducing signs, street lighting, street furniture, new plant materials, fencing, walkways and paving materials which are out of scale or inappropriate to the town.

Retaining landscape features such as parks, gardens, street furniture, walkways, streets, and building setbacks which link historic properties to their environment.

Destroying the relationship of historic properties and their environment by widening existing streets, changing paving material, or by introducing poorly designed and poorly located new street and parking lots or introducing new construction incompatible with the character of the town.

CONSIDER

Building: Lot

Inspecting the site carefully to locate and identify plants, trees, fencing, walkways, and street furniture which might be an important part of the property's history and development.

Retaining plants, trees, fencing, walkways, and street furniture which reflect the property's history and development

Basing all decision for new work on actual knowledge of the past appearance of the property found in photographs, drawings, newspapers, and tax records. If changes are made they should be carefully evaluated in light of the past appearance of the site.

Retaining the basic topography which reflects the character of the property.

Repairing and duplicating retaining walls wherever possible.

Building: Exterior Features

(Masonry Buildings)

Retaining original masonry, or stone and mortar, whenever possible, without the application of any surface treatment.

TRY TO AVOID

Making hasty changes to the appearance of the site by removing old plants, trees, fencing, walkways and street furniture before evaluating their importance in the property's history and development.

Over-restoring the site to an appearance it never had.

Altering the topography by extensive grading and cut and fill operations that will destroy the character of the site except where necessary for safety and efficiency.

Constructing new retaining walls which are incompatible with earlier construction in the areas of materials, scale, and texture.

Applying waterproof or water repellent coatings or other treatments unless required to solve a specific technical problem that has been studied and identified. Coatings are frequently unnecessary, expensive, and can accelerate deterioration on the masonry or stone.

CONSIDER

Building: Exterior Features (cont.)

Duplicating old mortar in composition, color, and texture.

Duplicating old mortar in joint size, method of application, and joint profile.

Cleaning masonry, or only when necessary to halt deterioration and always with the gentlest method possible, such as low pressure water and soft natural bristle brushes.

Repairing stucco with a stucco mixture duplicating the original as closely as possible in appearance and materials.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates as closely as possible

Replacing missing architectural features, such as cornices, brackets, railings, and shutters.

Retaining the original or early color and texture of masonry surfaces, wherever possible. Brick or stone surfaces may have been painted or whitewashed for practical and aesthetic reasons.

TRY TO AVOID

Repointing with mortar of high Portland cement content can create a bond that is often stronger than the building material. This can cause deterioration as a result of the differing coefficient of expansion and the differing porosity of the material and the mortar.

Repointing with mortar joints of a differing size or joint profile, texture, or color.

Sandblasting brick or stone surfaces; this method of cleaning erodes the surface of the material and accelerates deterioration.

Using chemical cleaning products which could have an adverse chemical reaction with the masonry or stone texture.

Applying new material which is inappropriate or was unavailable when the building was constructed, such as the old artificial brick siding, artificial cast stone or brick veneer.

Removing architectural features such as cornices, brackets, railings, shutters, window architraves and doorway pediments. These are usually an essential part of a building's character and appearance, illustrating the continuity of growth and change.

Indiscriminate removal of paint from masonry surfaces. This may be historically incorrect and may also subject the building to harmful damage.

CONSIDER

TRY TO AVOID

Building: Exterior Features (Cont.)

(Frame Buildings)

Retaining original material, whenever possible.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible.

(Roofs)

Preserving the original roof shape.

Retaining the original roofing material, whenever possible.

Replacing deteriorated roof coverings with new material that matches the old in composition, size, shape, color, and texture.

Removing architectural features such as siding, cornices, brackets, railings, shutters, window architraves and doorway pediments. These are, in most cases, an essential part of a building's character and appearance illustrating the continuity of growth and change.

Resurfacing frame buildings with new material which is inappropriate or was unavailable when the building was constructed such as artificial stone, brick veneer, asbestos or asphalt shingles, plastic or aluminum siding. Such material also can contribute to the deterioration of the structure from moisture and insect attacks.

Changing the original roof shape or adding features inappropriate to the essential character of the roof such as oversized dormer windows or picture windows.

Applying new roofing material that is inappropriate to the style of the building and the town.

Replacing deteriorated roof coverings with new materials which differ to such an extent from the old in composition, size, shape, color, and texture that the historical integrity of the property is diminished.

CONSIDER

Building: Exterior Features (Cont.)

Preserving or replacing, where necessary, all architectural features which give the roof its essential character, such as dormer windows, cupolas, cornices, brackets, chimneys, and cresting.

Placing television antennae and mechanical equipment, such as air conditioners, in an inconspicuous location.

(Windows and Doors)

Retaining existing window and door openings including window sash, glass lintels, sills, architraves, shutters, and doors, pediments, tools, and all hardware.

The stylistic period or periods a building represents. If replacement of window sash or doors is necessary, the replacement should duplicate the material, design, and the hardware of the older window sash or door.

TRY TO AVOID

Stripping the roof of architectural features important to its character.

Introducing new window and door openings into the principal elevations of historic buildings, or enlarging or reducing window or door steps, openings to fit new stock window sash or new stock door sizes.

Altering the size of window panes or sash which are part of the structure's historic fabric. Such changes destroy the scale and proportion of the building.

Discarding original doors and door hardware when they can be repaired and reused in place.

Inappropriate new window or door features such as aluminum storm and screen window combinations that require the removal of original windows and doors or the installation of plastic or metal strip awnings or false shutters that disturb the character and appearance of the building.

CONSIDER

TRY TO AVOID

Building: Exterior Features (Cont.)

(Porches and Steps)

Retaining porches and steps which are appropriate to the building and its development. Porches or additions reflecting later architectural styles are often important to the building's historical integrity and, whenever possible, should be retained.

Repairing or replacing, where necessary, deteriorated architectural features of wood, iron, cast iron, terracotta, tile, and brick.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates as closely as possible.

Building: Interior Features

Retaining original material, architectural features, and hardware, whenever possible, such as stairs, handrails, baluster, mantelpieces, cornices, chair rail, baseboard, panelings, doors and doorways, wallpaper, lighting fixtures, locks, and door knobs.

Removing or altering porches and steps which are appropriate to the building and its development and the style or styles it represents.

Stripping porches and steps of original material and architectural features, such as hand rails, balusters, columns, brackets, and roof decoration of wood, iron, cast iron, terra-cotta, tile, and brick.

Applying new material which is inappropriate or was unavailable when the building was constructed, such as the old artificial cast stone, brick veneer, asbestos or asphalt shingles, or plastic or aluminum siding.

Enclosing porches and steps in a manner that destroys their intended appearance.

Removing original material, architectural features, and hardware, except where essential for safety or efficiency.

CONSIDER

Building: Interior Features (Cont.)

Repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible.

Retaining original plaster, whenever possible.

Discovering and retaining original paint colors, wallpapers and other decorative motifs or, where necessary, replacing them with colors, wallpapers or decorative motifs based on the original.

Color

Discovering and retaining original paint colors, or repainting with colors based on the original to illustrate distinctive character of the property.

Plan and Function

Using a building for its intended purpose.

Finding an adaptive use, when necessary, which is compatible with the plan, structure, and appearance of the building.

Retaining the basic plan of a building, whenever possible.

TRY TO AVOID

Installing new decorative material which is inappropriate or was unavailable when the building was constructed, such as vinyl plastic or imitation wood wall and floor coverings, except in utility areas such as kitchens and bathrooms.

Destroying original plaster except where necessary for safety and efficiency.

Repainting with colors that cannot be documented through research and investigation to be the appropriate to the building and neighborhood.

Altering a building to accommodate an incompatible use requiring extensive alterations to the plan, materials and appearance of the building.

Altering the basic plan of a building by demolishing principal walls, partitions, and stairways.

CONSIDER

TRY TO AVOID

New Additions

Keeping additions to historic buildings to a minimum and making them compatible in scale, building materials, and texture.

Designing additions to be compatible in materials, size, scale, color, and texture with the earlier building and the area.

Using contemporary designs compatible with the character and mood of the building or area.

Making unnecessary additions to historic minimum property.

Designing additions which are incompatible with the earlier building and the area in materials, size, scale, and texture.

Imitating an earlier style or period or architecture in additions, except in rare cases where a contemporary design would detract from the architectural unity of an ensemble or group. Especially avoid imitating an earlier style or architecture in additions that have a completely contemporary function such as a gas station.

Mechanical Services: Heating, Electrical, and Plumbing

Installing necessary building services in areas and spaces that will require the least possible alteration to the materials, and appearance of the building.

Installing the vertical runs of ducts, pipes, and cables in closets, service rooms, and wall cavities.

Causing unnecessary damage to the plan, materials, and appearance of the building when installing mechanical plan, services.

Installing vertical runs of ducts, pipes, and cables in places where they will be a visual intrusion.

Mechanical Services: Heating, Electrical, and Plumbing (cont.)

CONSIDER

Selecting mechanical systems that best suit the building.

Rewiring early lighting fixtures.

Having exterior electrical and telephone cables installed under-ground on elevations of the building.

Safety and Code Requirements

Complying with code requirements in such a manner that the essential character of a property is preserved intact.

Investigating variances for historic properties afforded under some local codes.

Installing adequate fire prevention equipment in a manner which does minimal damage to the appearance or historic fabric of a property.

TRY TO AVOID

Cutting holes in important architectural features, such as cornices, decorative ceilings and paneling.

Installing "dropped" acoustical ceilings to hide inappropriate mechanical systems. This destroys the proportions and character of the rooms.

Having exterior electrical and telephone cables attached to the principal elevations of the building.

FOR FURTHER REFERENCE

The following books, article, and organizations will provide south, basic information about the rehabilitation and care of historic property.

Books

Bullock, Orin M., Jr., The Restoration Manual: An Illustrated Guide to Preservation and Restoration of Old Buildings, Norwalk, Connecticut: Silvermine Publishers, Inc., 1966

Cantacuzino, Sherban, New Uses for Old Buildings, London: Architectural Press, 1975.

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Stephen, George, Remodeling Old Houses Without Destroying Their Character, New York: Alfred A. Knoff.

Magazine

The Old-House Journal, a monthly publication, published by the Old-House Journal Corporation, 199 Berkeley Place, Brooklyn, N.Y. 11217.

Organizations

Committee on Historic Resources
American Institute of Architects
1735 New York Avenue, Northwest
Washington, D.C. 2006
E Clampus Vitus, Estanislao Chapter
Jack Brotherton, Historian

LA GRANGE HISTORICAL STANDARDS

APPENDIX 1-2

HISTORY

La Grange's colorful historic past created many buildings and structures worthy of preservation. Unfortunately, many of these structures have since been destroyed by flood or inactivity. The few remaining structures are scattered throughout the town amidst newer structures. The primary objective of this section is to identify the structures (see Historical Site Map on page 51) and develop guidelines for the preservation of their character and setting.

This section will provide guidelines that will assist the Planning Commission and Board of Supervisors when evaluating future construction and reconstruction in the La Grange historical designation, thus preserving and enhancing the unique historic character and setting. The ultimate goal of this plan is to assure that LaGrange's heritage will remain a functioning asset to the community through continued use and enjoyment.

In order that the historical character and setting of the community is preserved the Historical section is grouped into three categories:

Inventory of Building Details

Identifies the predominant architectural details found within the community.

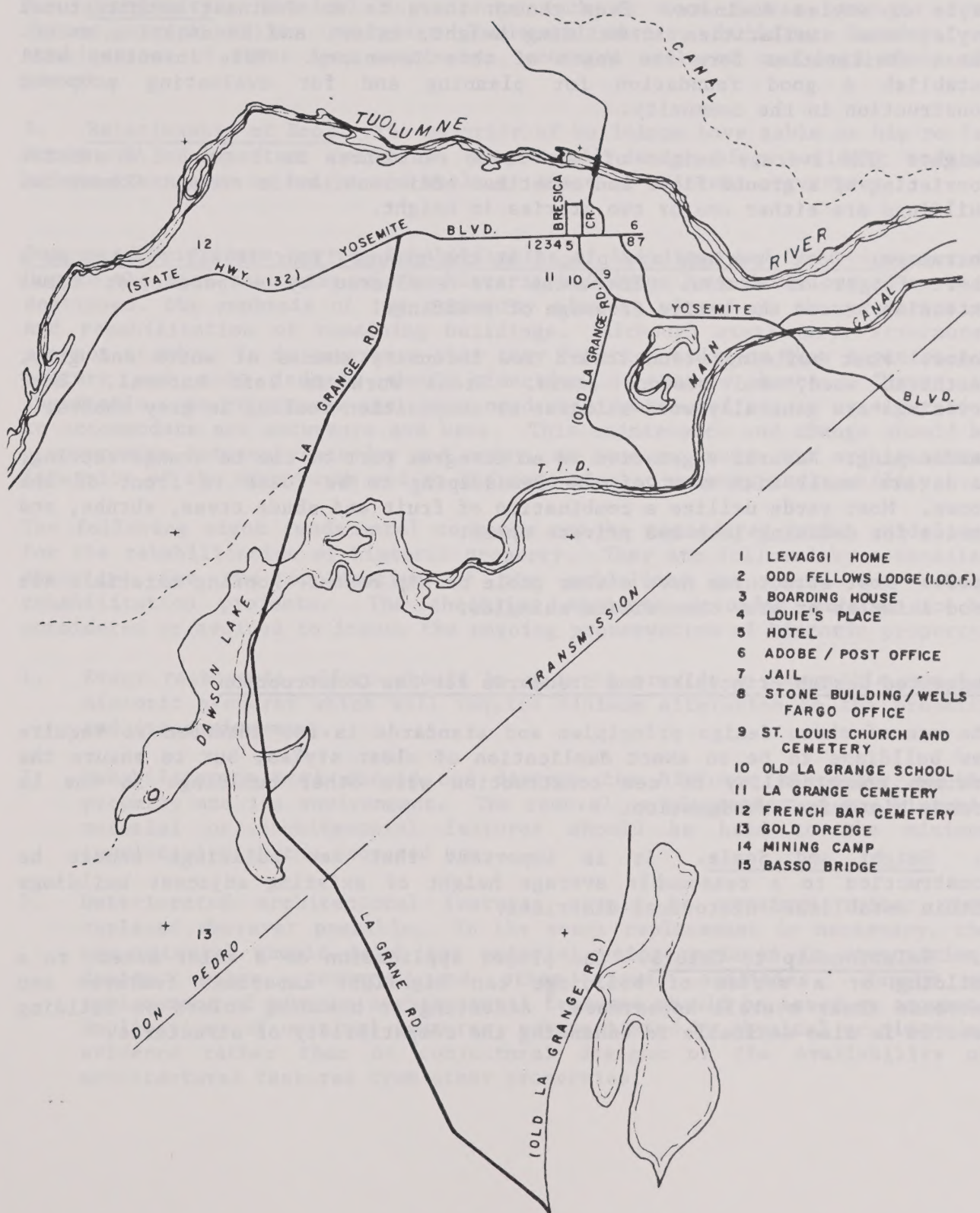
Suggested Design Principles and Standards for New Construction

Intended to ensure the maximum compatibility of new construction with older buildings utilizing the Inventory of Building Details as a data base.

Suggested Guidelines for the Rehabilitation of Buildings

Specific actions to be considered or avoided to ensure the ongoing historic preservation.

HISTORICAL SITES



Inventory of Building Details

With many original buildings missing and their void being filled in by newer structures constructed over a long time span, no definitive architectural style or styles dominate. Even though there is no dominant architectural style, some similarities in building height, color, and landscaping exist. These similarities form the basis of this inventory. This inventory will establish a good foundation for planning and for evaluating proposed construction in the community.

Height: The average height of the older residences is 1 to 1 1/2 stories consisting of a ground floor and sometimes additional attic rooms. Commercial buildings are either one or two stories in height.

Entrances: Door openings are placed at the ground floor level, reached by a short flight of stairs. Entrances are sheltered by a porch, at times extending across the entire frontage of buildings.

Color: Most buildings tend toward low intensity shades of white and gray, weathered wood, and redwood stain. Stone work is left natural. Roof coverings are generally wood shingles or composition roofing in grey shades.

Landscaping: Natural vegetation is an integral part of the La Grange setting. Yards are small with most of the landscaping to be found in front of the homes. Most yards utilize a combination of fruit and shade trees, shrubs, and fences for defining lots and private space.

Roofs: Most structures have either gable or hip roofs. Roofing materials are wood shingles or grey composition shingles.

Suggested Design Principles and Standards for New Construction

The use of these design principles and standards is not intended to require new buildings to be an exact duplication of older styles, but to ensure the maximum compatibility of new construction with other buildings in the La Grange historical designation.

1. Height and Scale. It is important that new buildings should be construction to a reasonable average height of existing adjacent buildings within established historical districts.

2. Relationship to Colors. The proper application of a color scheme to a building or a series of buildings can highlight important features and increase their overall appearance. Accenting or blending colors on building details is also desirable in enhancing the compatibility of structures.

3. Relationship of Landscaping. There is a predominance of a particular quality and quantity of landscaping. The concern here is more with mass and continuity. It is important that landscaping be placed to emphasize design rather than becoming an obscuring factor.

4. Continuity. Physical ingredients such as wood fences, wrought iron fences, brick walls, evergreen landscape masses, building facades, or combinations of these form continuous, cohesive walls of enclosure along the street.

5. Relationship of Roof. The majority of buildings have gable or hip roofs. Roofs are an important factor in the overall design of a building to help relate items such as height and scale to those of adjacent structures.

Suggested Guidelines for the Rehabilitation of Buildings and Structures

Due to the fact that many of the historic buildings have deteriorated or been destroyed, the emphasis of the community plan is placed on the preservation and rehabilitation of remaining buildings. Although stationary, structures are not static. It is necessary that they function today as they functioned a century ago and, indeed, should function a century hence. Change is inevitable. As structures age, they need maintenance and repair or alteration to accommodate new occupants and uses. This maintenance and change should be a compromise between yesterday and today, at once to insure the architectural integrity of the structures and at the same time to enhance their utility.

The following eight fundamental concepts can be considered basic guidelines for the rehabilitation of historic property. They are followed by a detailed checklist for the application of the guidelines to carry out actual rehabilitation projects. The checklist suggests specific actions to be considered or avoided to insure the ongoing preservation of historic property.

1. Every reasonable effort should be made to provide a compatible use for historic property which will require minimum alteration to the property and its environment.
2. Rehabilitation work should not destroy the historic character of the property and its environment. The removal or alteration of any historic material or architectural features should be held to the minimum consistent with the proposed use.
3. Deteriorated architectural features should be repaired rather than replaced wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of original features, substantiated by physical or pictorial evidence rather than on conjectural designs or the availability of architectural features from other properties.

4. Distinctive stylistic features or examples of skilled craftsmanship which characterize older structures and often predate the mass production of building materials should be treated with sensitivity.
5. Changes to the property and its environment which have taken place in the course of time are evidence of the history of the property and the town. These changes may have developed significance in their own right, and this significance should be recognized and respected.
6. All historic property should be recognized as a product of its own time. Alterations that restore a building to an earlier appearance which the building never had should be discouraged.
7. It is not the intent of these guidelines to discourage contemporary design of new buildings, additions to existing buildings, or landscaping in historic districts if such design is compatible with the size, scale, color, material, and character of the neighborhood, building, or its environment.
8. Wherever possible, new additions or alterations to historic property should be done in such a manner that if they were to be removed in the future, the essential form and integrity of the original property would be unimpaired.

CHECKLIST FOR THE APPLICATION OF BASIC GUIDELINES

These guidelines suggest specifications which should be considered or avoided when remodeling or restoring existing structures.

CONSIDER

TRY TO AVOID

La Grange

Retaining distinctive features such as the size, scale, mass, color, and materials or buildings, including roofs, porches, stairways that give the town its historic character.

Introducing new construction or materials into the town which are incompatible with the character of the town and because of size, scale, color, and materials.

Using new plant materials, fencing, walkways, and street furniture which are compatible with the character of the town in size, scale, material, and color.

Introducing signs, street lighting, street furniture, new plant materials, fencing, walkways, and paving materials which are out of scale or inappropriate to the town.

CONSIDER

Retaining landscape features such as gardens, street furniture, walkways, streets, and building setbacks which link historic properties to their environment.

Building: Lot

Inspecting the site carefully to locate and identify plants, trees, fencing, walkways, and street furniture which might be an important part of the property's history and development.

Retaining plants, trees, fencing, walkways, and street furniture which reflect the property's history and development.

Basing all decision for new work on actual knowledge of the past appearance of the property found in photographs, drawings, newspapers, and tax records. If changes are made they should be carefully evaluated in light of the past appearance of the site.

Retaining the basic topography which reflects the character the property.

TRY TO AVOID

Destroying the relationship of historic properties and their environment by widening existing streets, changing paving material, or by introducing poorly designed and poorly located new streets and parking lots or introducing new construction incompatible with the character of the town.

Making hasty changes to the appearance of the site by removing old plants, trees, fencing, walkways, and street furniture before evaluating their importance in the property's history and development.

Over-restoring the site to an appearance it never had.

Altering the topography by extensive grading and cut and fill operations that will destroy the character of the site except where necessary for safety and efficiency.

CONSIDER

TRY TO AVOID

Building: Exterior Features

(Masonry Buildings)

Retaining original masonry, or stone and mortar, whenever possible, without the application of any surface treatment.

Duplicating old mortar in composition, color, and texture.

Duplicating old mortar in joint size, method of application, and joint profile.

Cleaning masonry, or only when necessary to halt deterioration always with the gentlest method possible, such as low pressure water and soft natural bristle brushes.

Repairing stucco with a stucco mixture duplicating the original as closely as possible in appearance and texture.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible.

Applying waterproof or water repellent coatings or other treatments unless required to solve a specific technical problem that has been studied and identified. Coatings are frequently unnecessary, expensive, and can accelerate deterioration of the masonry or stone.

Repointing with mortar of high Portland cement content can create a bond that is often stronger than the material. This can cause deterioration as a result of the differing coefficient of expansion and the differing porosity of the material and the mortar.

Repointing with mortar joints of a differing size or joint profile, texture, or color.

Sandblasting brick or stone surfaces; this method of and cleaning erodes the surface of the material and accelerates deterioration.

Using chemical cleaning products which could have an adverse chemical reaction with the masonry or stone materials.

Applying new material which is inappropriate or was unavailable when the building was constructed, such as artificial brick siding, artificial cast stone or brick veneer.

CONSIDER

TRY TO AVOID

Building: Exterior Features (cont.)

Replacing missing architectural features, such as cornices, brackets, railings, and shutters.

Retaining the original or early color and texture of masonry surfaces, wherever possible. Brick or stone surfaces may have been painted or whitewashed for practical and aesthetic reasons.

(Frame Buildings)

Retaining original material, whenever possible.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible.

Removing architectural features, such as cornices, brackets, railings, shutters, window architraves, and doorway pediments. These are usually an essential part of a building's character and appearance, illustrating the continuity of growth and change.

Indiscriminate removal of paint from masonry surfaces. This may be historically incorrect and may also subject the building to harmful damage.

Removing architectural features such as siding, cornices, brackets, railings, shutters, window architraves, and doorway pediments. These are, in most cases, an essential part of a building's character and appearance, illustrating the continuity of growth and change.

Resurfacing frame buildings with new material which is inappropriate or was unavailable when the building was constructed such as artificial stone, brick veneer, asbestos or asphalt shingles, plastic or aluminum siding. Such material also can contribute to the deterioration of the structure from moisture and insect attacks.

CONSIDER

TRY TO AVOID

Building: Exterior Features (cont.)

(Roofs)

Preserving the original roof shape.

Retaining the original roofing material, whenever possible.

Replacing deteriorated roof coverings with new material that matches the old in composition, size, shape, color, and texture.

Preserving or replacing, where necessary, all architectural features which give the roof its essential character, such as dormer windows, cupolas, cornices, brackets, chimneys, and cresting.

Placing television antennae and mechanical equipment, such as air conditioners, in an inconspicuous location.

Changing the original roof shape or adding features inappropriate to the essential character of the roof such as oversized dormer windows or picture windows.

Applying new roofing material that is inappropriate to the style of the building and the town.

Replacing deteriorated roof coverings with new materials which differ to such an extent from the old in composition, size, shape, color, and texture that the historical integrity of the property is diminished.

Stripping the roof of architectural features important to its character.

CONSIDER

Building: Exterior Features (cont.)

(Windows and Doors)

Retaining existing window and door openings including sash, glass lintels, architraves, shutters and doors, pediments, hoods, steps, and all hardware.

The stylistic period or periods a building represents. If replacement of window sash or doors is necessary, the replacement should duplicate the material, design, and the hardware of the older window sash or door.

TRY TO AVOID

Introducing new window and door openings into the window principal elevations of sills, historic buildings, or enlarging or reducing window or door openings to fit new stock window sash or new stock door sizes.

Altering the size of window panes or sash which are part of the structure's historic fabric. Such changes destroy the scale and proportion of the building.

Discarding original doors and door hardware when they can be repaired and reused in place.

Inappropriate new window or door features such as aluminum storm and screen window combinations that require the removal of original windows and doors or the installation of plastic or metal strip awnings or fake shutters that disturb the character and appearance of the building.

CONSIDER

TRY TO AVOID

Building: Exterior Features (cont.)

(Porches and Steps)

Retaining porches and steps which are appropriate to the building and its development. Porches or additions reflecting later architectural styles are often important to the building's historical integrity and, whenever possible, should be retained.

Repairing or replacing, where necessary, deteriorated architectural features of wood, iron, cast iron, terra-cotta, and brick.

Repairing or replacing, where necessary, deteriorated material with new material that duplicates the old as closely as possible.

Building: Interior Features

Retaining original material, architectural features, and hardware whenever possible, such as stairs, handrails, baluster, mantelpieces, cornices, chair rail, baseboard, panelings, doors and doorways, wallpaper, lighting fixtures, locks and doorknobs.

Removing or altering porches and steps which are appropriate to the building and its development represents.

Stripping porches and steps of original material and architectural features, such as hand rails, balusters, tile, columns, brackets, and roof decoration of wood, iron, cast iron, terra-cotta, tile, and brick.

Applying new material which is inappropriate or was unavailable when the building was constructed, such as artificial cast stone, brick veneer, asbestos or asphalt shingles, or plastic or aluminum siding.

Enclosing porches and steps in a manner that destroys their intended appearance.

Removing original material, architectural features, and hardware, except where essential for safety or efficiency.

CONSIDER

TRY TO AVOID

Building: Interior Features (cont.)

Repairing or replacing where necessary, deteriorated material with new material that duplicates the old as closely as possible.

Retaining original plaster whenever possible.

Discovering and retaining original paint colors, wallpapers and other decorative motifs or where necessary, replacing them with colors, wallpapers or decorative motifs based on the original.

Color

Discovering and retaining original paint colors, or repainting with colors based on the original to illustrate the distinctive character of the property.

Plans and Function

Using a building for its intended purpose.

Finding an adaptive use, when necessary, which is compatible with the plan, structure, and appearance of the building.

Retaining the basic plan of a building whenever possible.

Installing new decorative material which is inappropriate or was unavailable when the building was constructed, such as vinyl, plastic, or imitation wood wall and floor coverings, except in utility areas such as kitchens and bathrooms.

Destroying original plaster except where necessary for safety and efficiency.

Repainting with colors that cannot be documented through research and investigation to be the appropriate to the building and the neighborhood.

Altering a building to accommodate an incompatible use requiring extensive alterations to the plan, materials, and the appearance of the building.

Altering the basic plan of a building by demolishing principal walls, partitions and stairways.

CONSIDER

TRY TO AVOID

Additions

Keeping additions to historic buildings at a minimum and pursuing the use of similar scale, building materials, and texture.

Designing additions to be compatible in materials, size, scale, color, and texture with the earlier building and the area.

Using contemporary designs compatible with the character and mood of the building or the area.

Unnecessary additions to historic property.

Additions which are incompatible with the earlier building and the area in materials, size, scale, and texture.

Imitating an earlier style or period of architecture in additions, except in rare cases where a contemporary design would detract from the architectural unity of an ensemble or group. Especially avoid imitating an earlier style of architecture in additions that have a completely contemporary function such as a gas station.

Mechanical Services: Heating, Electrical, and Plumbing

Installing necessary building services in areas and space that will require the least possible alteration to the plan, materials, and appearance of the building.

Installing the vertical runs of ducts, pipes, and cables in closets, service rooms, and wall cavities.

Selecting mechanical systems that best suit the building.

Causing unnecessary damage to the plan, materials, and appearance of the building when installing mechanical services.

Installing vertical runs of ducts, pipes, and cables in places where they will be a visual intrusion.

Cutting holes in important architectural features, such as cornices, decorative ceilings, and paneling.

Installing "dropped" acoustical ceilings to hide inappropriate mechanical systems. This destroys the proportions and character of the rooms.

CONSIDER

TRY TO AVOID

Mechanical Services: Heating, Electrical, and Plumbing (cont.)

Rewiring early lighting fixtures.

Having exterior electrical and telephone cables installed underground.

Having exterior electrical and telephone cables attached to the principal elevations of the building.

Safety and Code Requirements

Complying with code requirements in such a manner that the essential character of a property is preserved intact.

Investigating variances for historic properties afforded under some local codes.

Installing adequate fire prevention equipment in a manner which does minimal damage to the appearance or historic fabric of a property.

Providing access for the handicapped without damaging the essential character of a property.

FOR FURTHER REFERENCE

The following books, article, and organizations will provide sound, basic information about the rehabilitation and care of historic property.

Books

Bullock, Orin M., Jr., The Restoration Manual: An Illustrated Guide to Preservation and Restoration of Old Buildings, Norwalk, Connecticut: Silvermine Publishers, Inc., 1966.

Cantacuzino, Sherban, New Uses for Old Buildings, London: Architectural Press, 1975.

Gray, Thorne B., Quest for Deep Gold: The Story of La Grange, California, La Grange, California, 1973.

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Insall, Donald W., The Care of Old Buildings Today: A Practical Guide, London: Architectural Press, 1972.

Stephen, George, Remodeling Old Houses Without Destroying Their Character, New York: Alfred A. Knoff.

Magazine

The Old-House Journal, a monthly publication, published by the Old-House Journal Corporation, 199 Berkeley Place, Brooklyn, New York 11217.

Organizations

Committee on Historic Resources; American Institute of Architects; 1735 New York Avenue, Northwest; Washington, D.C. 20006

E Clampus Vitus, Estanislao Chapter; Jack Brotherton, Historian

Interagency Historic Architectural Services Program; Office of Archeology and Historic Preservation; National Park Service; Department of the Interior; Washington, D.C. 20240

Office of Preservation Services; National Trust for Historic Preservation; 740-748 Jackson Place, Northwest; Washington, D.C. 20006

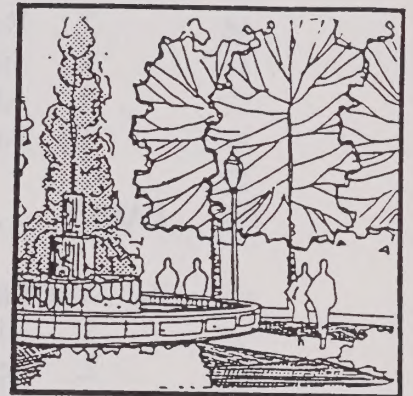
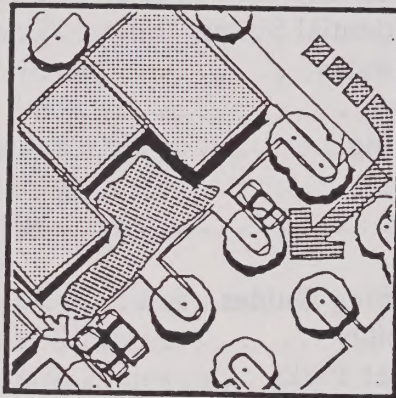
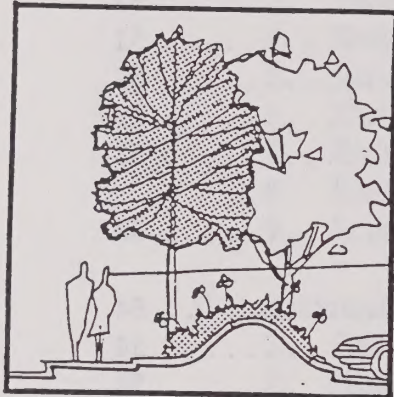
Stanislaus County Historical Society; c/o Jack Brotherton; 1226 Fiori Avenue; Modesto, California 95350

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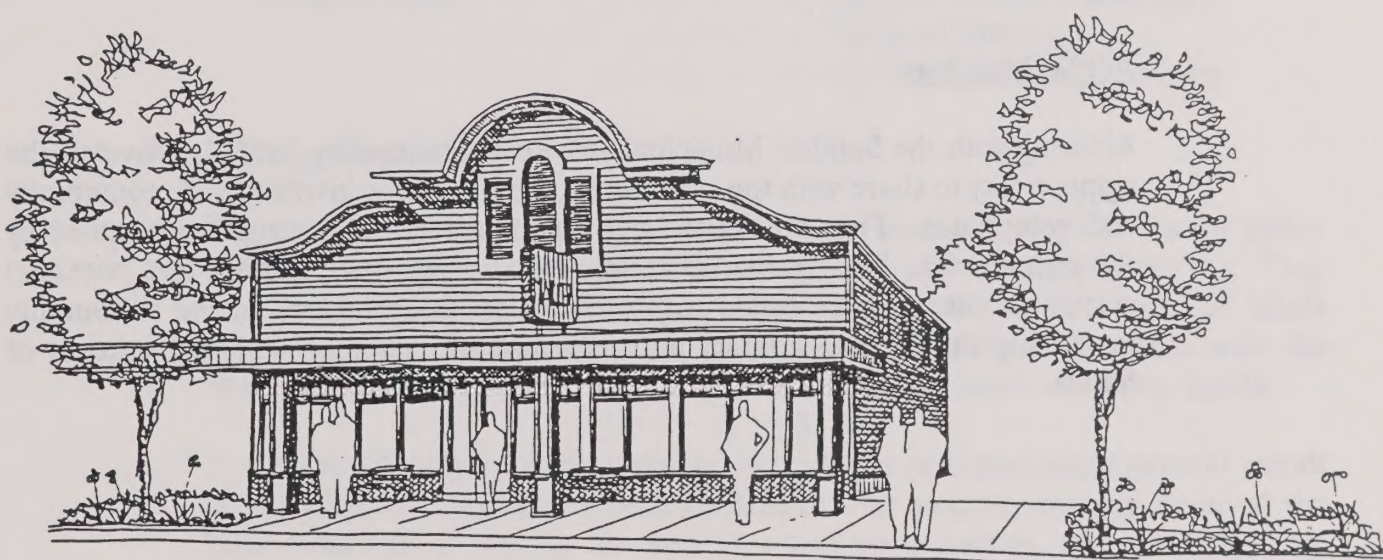


DESIGN GUIDELINES

INTRODUCTION

The Salida Design Guidelines will provide a flexible framework to guide both public and private community revitalization efforts in the form of physical and aesthetic improvements within the Salida Redevelopment Area. Improvements in the streetscape, creation of a consistent architectural theme, and preservation of the agricultural/western "small town" character represent desirable outcomes.

The following Community Design Guidelines are based on the citizen input gathered from Municipal Advisory Committee (MAC) meetings, the "Have a Say in Salida's Future" questionnaire and a photo survey. The surveys and meetings allowed local citizens to identify positive and negative elements of Salida.



Citizen Participation

Public design guidelines are a control device that affect community image, identity, and economic trends. Therefore, it is crucial that criteria for design controls be based on a consensus of citizen opinion.

Ensuring equitable representation of citizen's views is difficult considering the diversity of tastes, culture, and lifestyles resulting from changing population patterns in rural and small town communities. Long-term residents and new residents may have different ideas about what constitutes rural or small town as well as desirable or undesirable urban design.

For Salida, these issues guided the survey methods used to retrieve citizen opinion, community character, and design image. A description of the methods used to gain public input for the development of Salida's Community Design Guidelines Manual follows:

1. Public Meetings

Meeting with the Salida's Municipal Advisory Community (MAC) provided the opportunity to share with the community the processes involved with community redevelopment. They have also been valuable for the information supplied by the community. They provided insight into survey development and potential survey problems. The MAC has provided an essential link to the community in gaining one-on-one contact and information exchange with the citizens of Salida.

The following is a list generated as a result of an "icons" and "aliens" discussion conducted at the first MAC meeting. Icons being elements of the town that are admirable or desirable and aliens being those that are undesirable or alien.

Icons

Smallness (image of)
Main Street
Existing Median Trees
Agriculture
Sense of Community
Park -- but need to redesign
Old Grocery Store
Uniform Signage Ordinance
Building Height Limitations
Bicycle Paths

Aliens

Poor Drainage
Poor Lighting
Lack of Curbs and Sidewalks
Walled Communities
Lack of Public Restrooms
Old Salida Boulevard (99)
splits community
Extra Streets -- Lack of
direction of some streets
Mix of Architectural Styles
Lack of Services
Railroad Splits Community

2. "Have a Say" Survey

The survey was a one-page questionnaire that was made available to the public in Salida's markets, post office, bank, and library (Appendix, page 61-A). They were located in places that are frequented by a wide cross-section of Salida residents. The survey provided the design guidelines design team with the necessary information to prioritize a large range of issues affecting Salida.

A total of 123 surveys were completed and they revealed some general trends in the public's concern over Salida's future. The primary concern involved the poor condition of streets, the lack of adequate sidewalks, and street lighting. Concern about the condition of the downtown and the parks emerged as well as concerns about police protection. The following list summarizes the key issues raised in the survey.

- Insufficient Street (curb, gutter, and sidewalk) Improvements
- Lack of Street Lighting
- Safety in Parks
- Downtown Improvements
- Retaining "Small Town" Character
- Lack of Landscaping
- General Cleanup of Community
- Inadequate Police Protection

(See survey results in Appendix, page 61-B).

3. Photo Survey

The photo survey was an exercise to better understand the positive and negative community images as seen by the residents of Salida. There were 12 cameras; six were labeled "Do Like" and six were labeled "Don't Like". The MAC chose members of the community to take pictures of things and places that they liked and didn't like depending on the camera they were issued.

The result was a greater effort by the camera users to show the things and places that they didn't like (all six "Don't Like" cameras and two "Do Like" cameras were returned). To a lesser degree the camera users took pictures of things and places they did like. The "Do Like" pictures reflect things and places located in Salida as well as other communities.

In addition to the photos, the camera users were asked to provide written comments regarding the photos taken and other concerns they wished to express. As a result, the photo survey exercise identified the following as being problem areas within the Community of Salida.

- A. Street Improvements -- Sidewalks, curbs, street lighting, and circulation problems.
- B. Commercial Buildings -- Lack of cohesive architectural style and character.
- C. Commercial Development -- Downtown commercial core identify. Need to develop infill lots. Develop infill lots.

- D. The Median -- Lack of drainage currently causing puddling in median. Needs curbs and landscaping to prevent parking within median area.
- E. People Spaces and Parks -- Lack of sidewalks and streetscape makes walking in and around the downtown difficult.
- F. Residential Areas -- Lack of curbs, gutters and sidewalks, unpaved streets, and alleys. Trash and junk in residential yards and vacant lots.

The positive or desirable elements within the community reflected through the photo survey were:

- A. Newer development in both the downtown and industrial areas. Examples are Carl's Jr. Restaurant, Bueno Deli, and most schools and churches in the community.
- B. Buildings on Broadway such as the Broadway Market, Union Safe Bank, Salida Home Market, and the United Congregational Church.
- C. Mature landscape and trees such as those in the Broadway median and park.

Conclusion

In conclusion, the results of each of the community involvement techniques (MAC meetings, "Have a Say" questionnaire, and photo survey) were successful in establishing an understanding of the problems and opportunities within the community which served to direct the preparation of the guidelines.

DESIGN GUIDELINES

The following Design Guidelines are broken up into five areas of concern or sections. The sections were established in response to initial community analysis and survey results. The first three sections represent area specific districts within Salida's redevelopment area. The guidelines in these sections are divided into physical design categories such as site planning, architecture, and street improvements and are tangibly specific. The last two sections are area-wide guidelines requiring general application. These sections are policy oriented, requiring subsequent efforts to establish implementation mechanisms (map on page 8).

Section I Downtown Commercial District

Section I focuses on the downtown commercial district. The downtown commercial district represents the Broadway Street corridor west of Highway 99. Because of overwhelming community concern over Salida's lack of a centralized downtown identity and architectural theme, the downtown was singled out as an important area warranting the need to have its own design treatment (page 9).

Section II Nonresidential District

Section II of the guidelines address the nonresidential district. The nonresidential district represents all commercial, office, industrial, and public facility land uses that exist within the redevelopment area, but are outside the residential district and the downtown commercial district. The design guidelines are flexible enough to apply to all land uses within this district (page 33).

Section III Residential

Section III is the residential district of Salida. The residential district represent all residential areas inside the redevelopment area. The guidelines apply primarily to the "older" existing neighborhoods, since the Salida residents expressed concerns about the condition of these neighborhoods. These are also the neighborhoods that will probably experience rehabilitation and renovation efforts first and will benefit more directly from redevelopment. Primary concerns centered around the existing housing stock, the accumulation of trash, junk, and abandoned cars, and unpaved alleys, streets and lack of curbs.

Within the established residential neighborhoods of Salida, there are district areas representing different eras in the architecture, siting, and public improvements of the homes. These guidelines are intended to respect that and encourage the preservation of the historical nature of each district area.

The primary concern toward the "newer" neighborhoods is how they are interfacing with the existing neighborhoods. In particular, concern was expressed over the new "walled communities" that are springing up on the edges of Salida. While not denying that there are some positive attributes created by enclosing a subdivision within walls, the negative effects of walled neighborhoods is being felt by the surrounding community. Walled subdivisions represent a poor solution to suburban design and land use concerns and have resulted in the disruption and fragmentation of the uniformity in the natural outgrowth of older residential neighborhoods. Guidelines in Section III address this and other identified concerns (page 43).

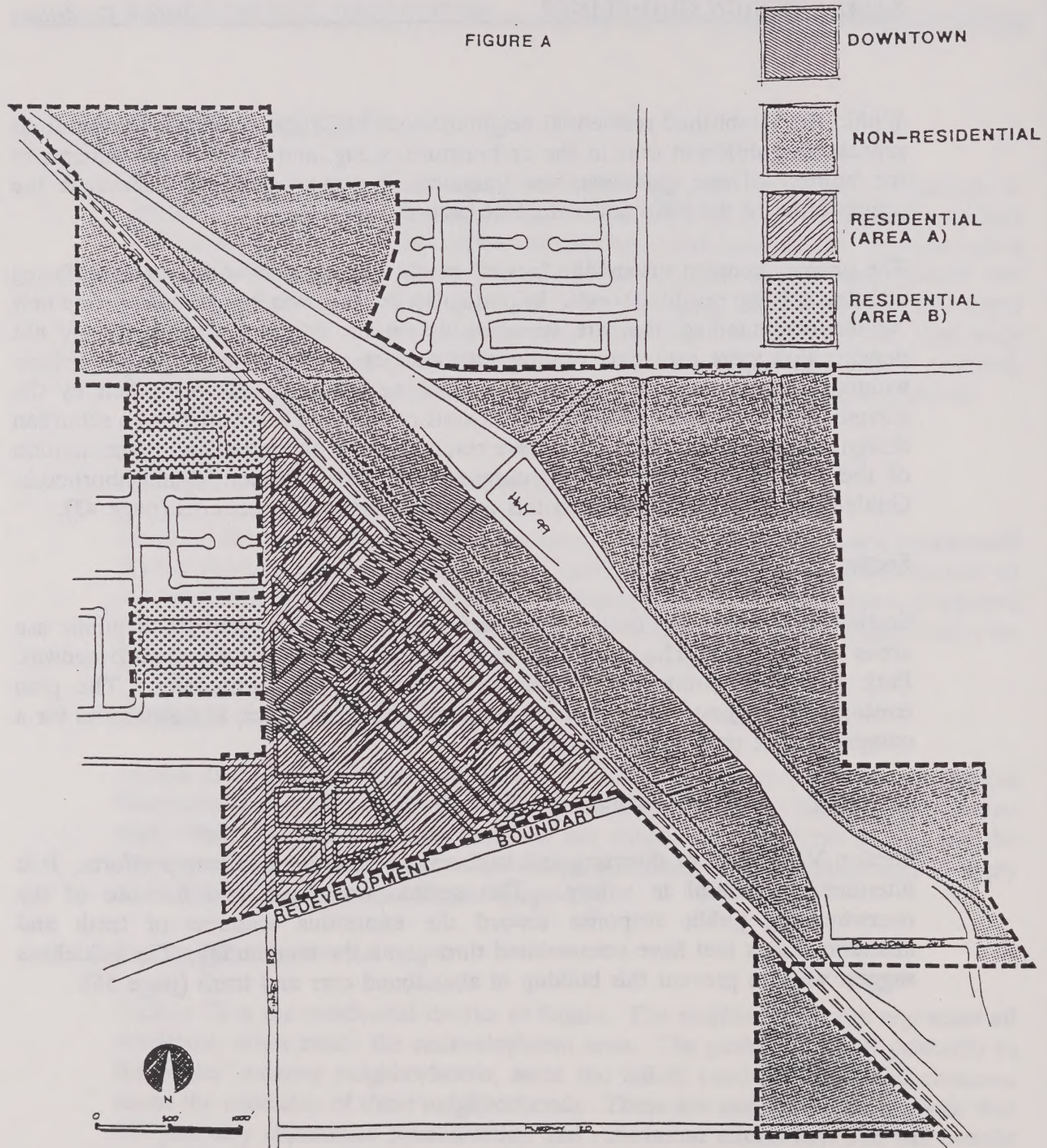
Section IV Parks

Section IV speaks specifically to concerns raised regarding parks and public use areas within Salida. The focus is on the major park in Salida located on Broadway. Park guidelines outline an overall Park Plan for the community. The plan conceptually suggests ways to increase safety, pedestrian links, and aesthetics for a comprehensive park system (page 54).

Section V General Cleanup

Section V is aimed at directing and encouraging community cleanup efforts. It is intentionally general in nature. This section was developed because of the overwhelming public response toward the enormous amounts of trash and abandoned cars that have accumulated throughout the community. The guidelines suggest ways to prevent this buildup of abandoned cars and trash (page 56).

FIGURE A



SALIDA
COMMUNITY DESIGN GUIDELINES

DISTRICT MAP

I. DOWNTOWN COMMERCIAL DISTRICT

Downtown Salida (Broadway Street corridor west of Highway 99) Salida is rundown and in a state of decay. The buildings lack architectural and site design consistency, landscaping, and pedestrian amenities. They contain incompatible uses and contribute to downtown Salida's economic dysfunction (Claire, 1990).

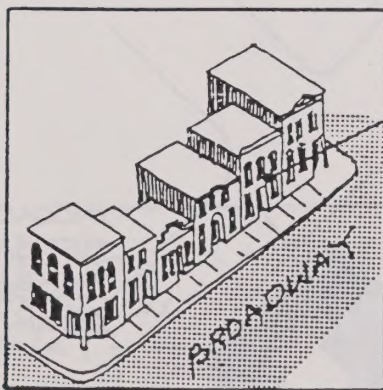
Goal: Create a downtown commercial district that provides an environment for economic growth, pedestrian movement and involvement, aesthetic harmony, parking, and safety.

A. Site Planning Guidelines

Improved site planning in the downtown core (Broadway) will increase pedestrian involvement and safety, create a traditional "downtown" look with strong street edges and pedestrian "boardwalks" and provide a "small town" feeling for Salida residents and visitors.

1. Building Location: Orient buildings parallel with the street.

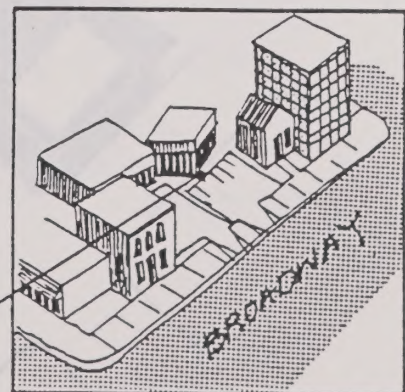
Intent: Discourage placement of buildings which are inconsistent with the character of a downtown street.



THIS

VARIOUS BUILDING
LOCATIONS INCONSISTENT
WITH A "DOWNTOWN"
CHARACTER

BUILDING FACADES
EVEN WITH SIDEWALKS.



NOT THIS

2. Setbacks: Site downtown buildings flush with the sidewalk on the front and side property lines.

Intent: Create a strong linear experience along storefront sidewalks for the pedestrian and a downtown character for Salida.

FRONT AND SIDE SETBACKS WHICH ENHANCE THE PEDESTRIAN EXPERIENCE AND MAINTAIN A LINEAR SIDEWALK EDGE ARE ENCOURAGED

ZERO SETBACK AGAINST STREET R.O.W.

THIS

VARYING REAR SETBACKS CREATE SPACE FOR PARKING, PLAZAS, AND LOADING

ENCOURAGE "WALL TO WALL" BUILDING REPLACEMENT PROVIDE OCCASSIONAL GAPS BETWEEN BUILDINGS FOR PEDESTRIAN ACCESS TO REAR PARKING AREAS.

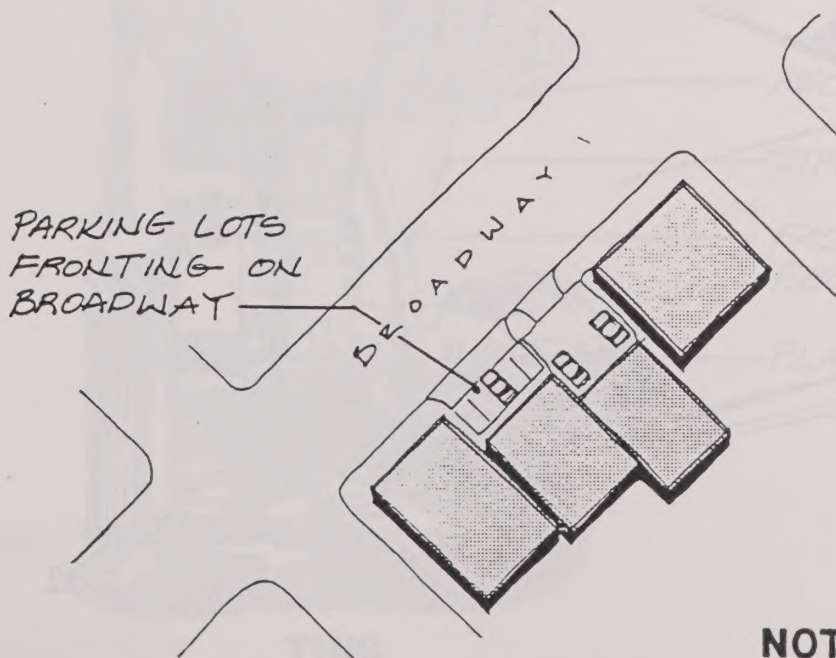
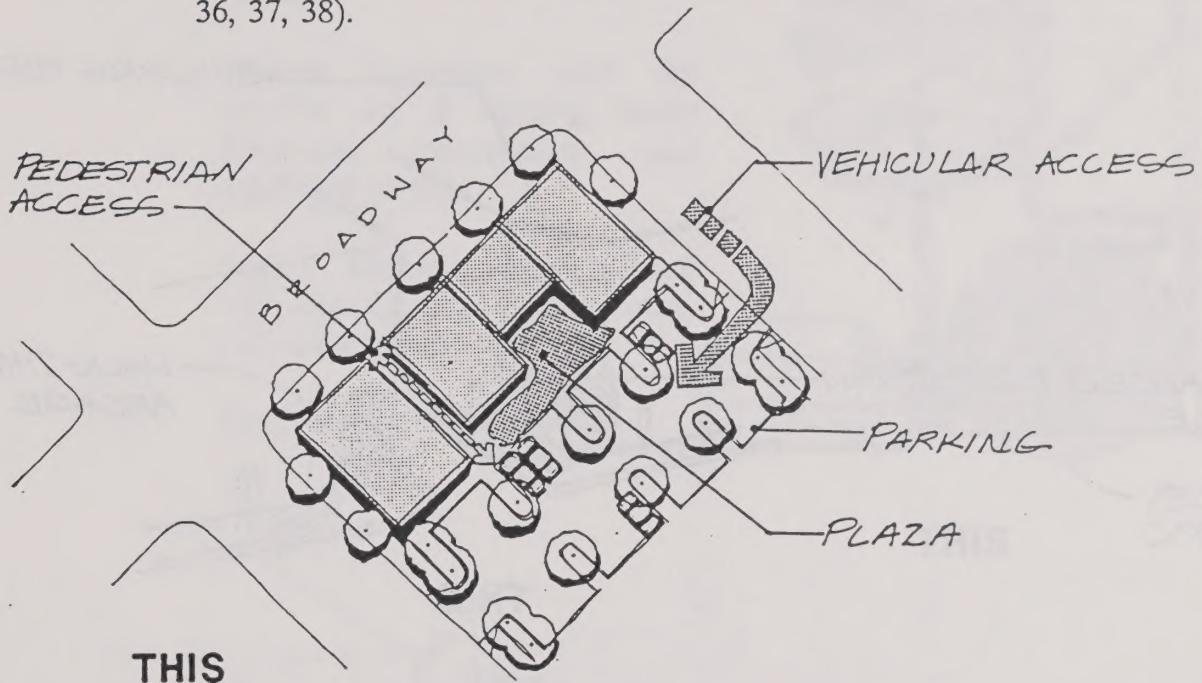
INCONSISTENT BUILDING SETBACKS DISRUPT A PEDESTRIAN ORIENTED DOWNTOWN

NOT THIS

3. Parking Lots: Locate parking lots behind buildings that front Broadway. Provide access to these lots with mid-block breaks in the street facades. Provide landscaped entries and canopy trees for shade. Prohibit parking lots that front on to Broadway.

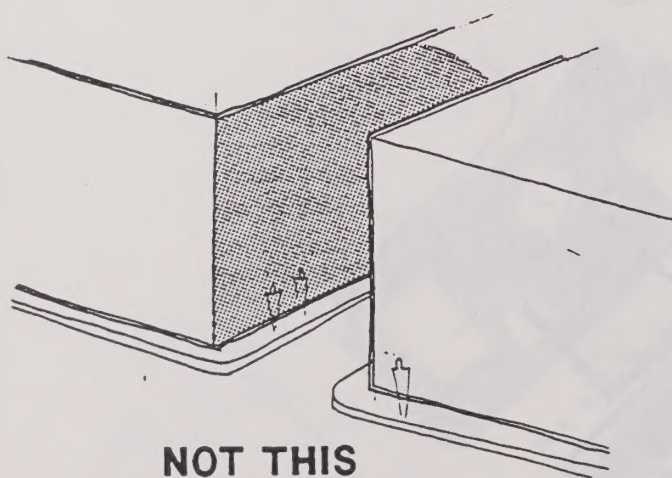
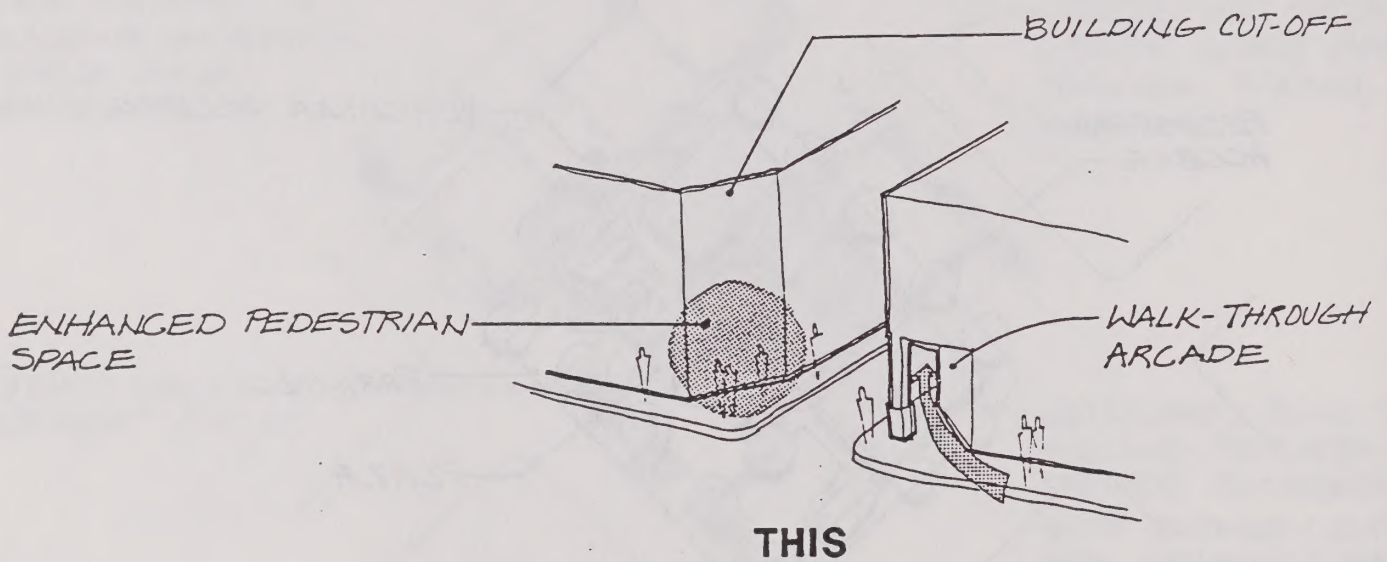
Intent: Provide an uninterrupted street facade along Broadway.

(Refer to Park Lot Design for queuing, screening, and entry design, pages 36, 37, 38).



4. Corner Buildings: Corner buildings should incorporate architectural features such as building cut-offs and walk-through arcades.

Intent: Enhance pedestrian movement, driver visibility, and streetscape variety.

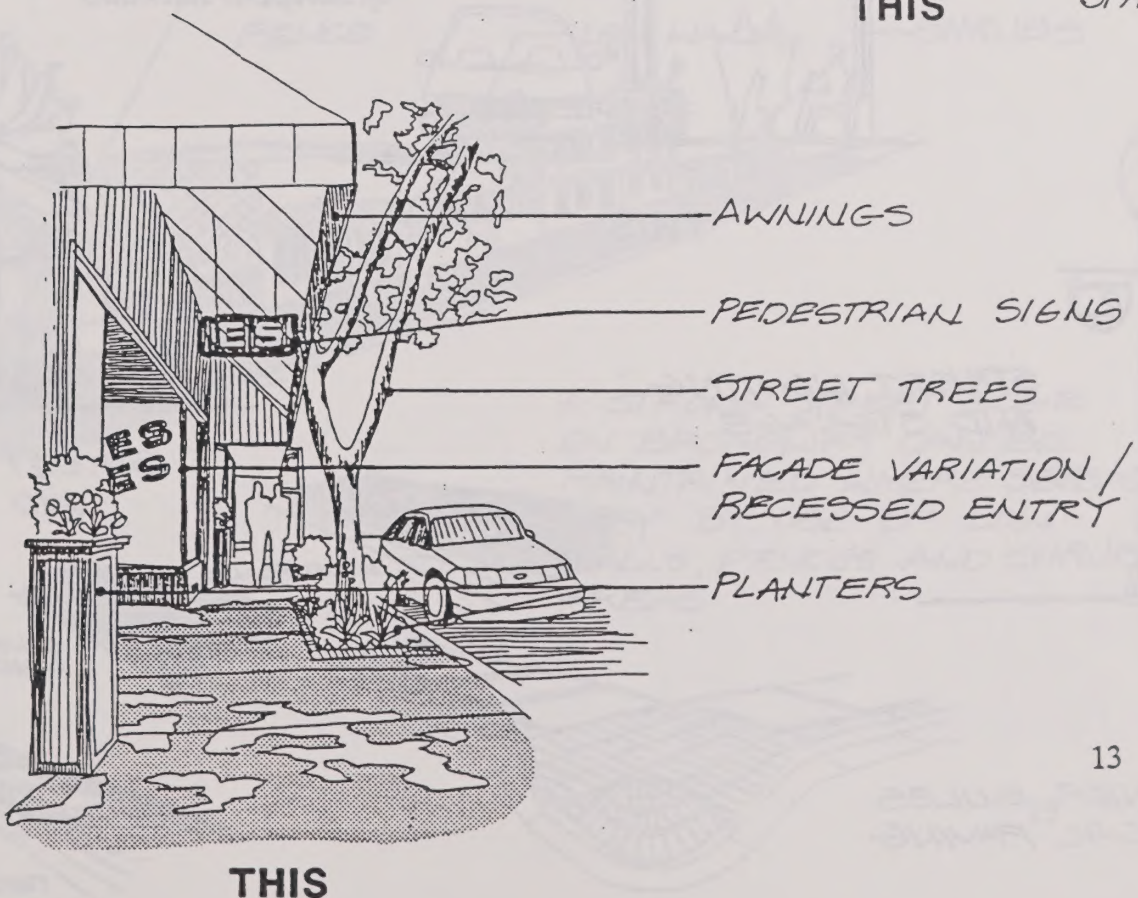
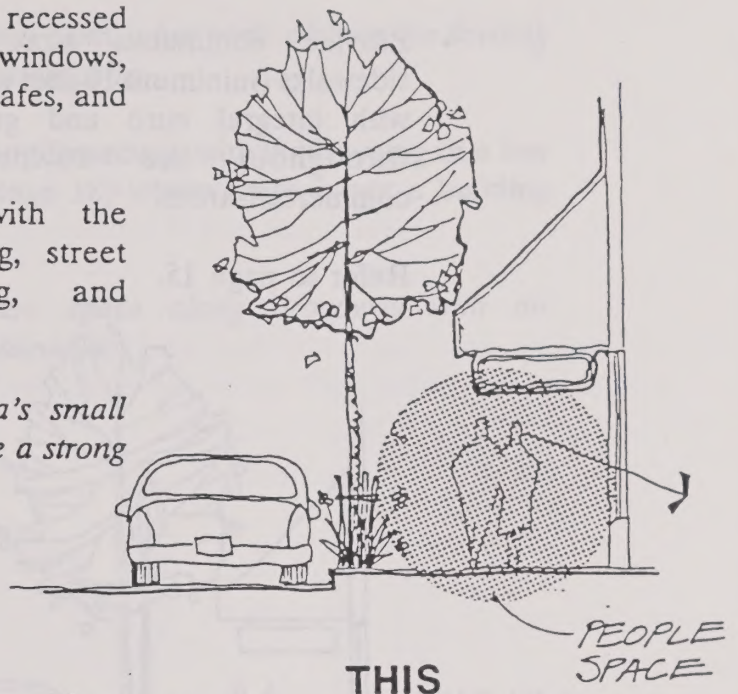


5. Pedestrian Orientation: Site and design buildings with facade variations and pedestrian-oriented streetscapes.

- Encourage facade variations such as (but not limited to) recessed entry features, bay windows, planter boxes, sidewalk cafes, and plazas.
- Provide streetscape with the creative use of lighting, street furniture, landscaping, and enhanced paving.

Intent: Maintain Salida's small town character and create a strong pedestrian environment.

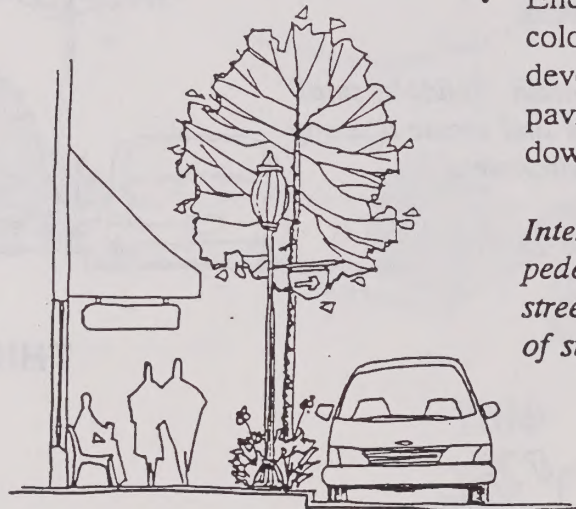
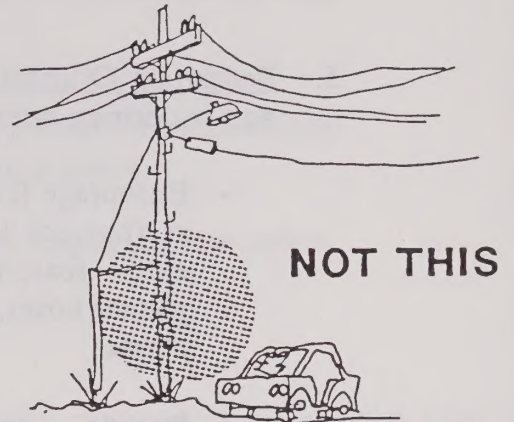
Refer to page 23.



6. Sidewalks and Paving: Sidewalks, curbs, and paving design should reinforce a "small town" character rather than create an urban feeling.

- Provide continuous storefront sidewalks (minimum 10-feet wide) with integral curb and gutter throughout the downtown commercial areas.

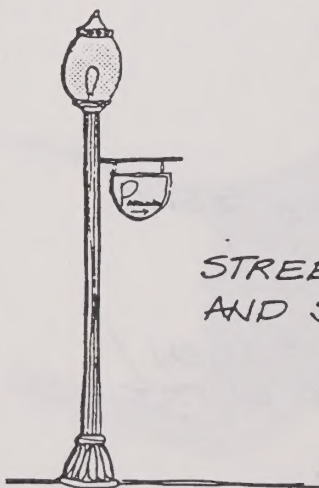
Refer to page 15.



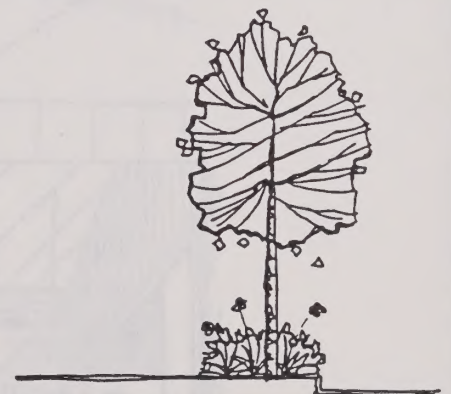
THIS

- Encourage special paving, colored concretes, and the development of a consistent paving pattern throughout the downtown core.

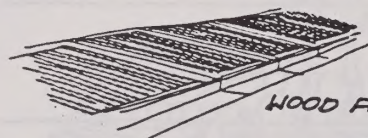
Intent: Reinforce a continuous pedestrian-oriented downtown street environment with a system of storefront sidewalks.



STREET LIGHTING
AND SIGNAGE



STREET TREE
AND PLANTER

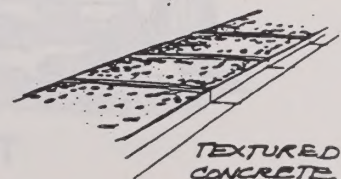
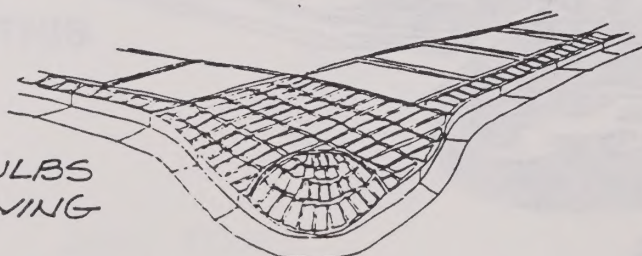


WOOD PLANK



COLOR
CONCRETE

CORNER BULBS
SPECIAL PAVING



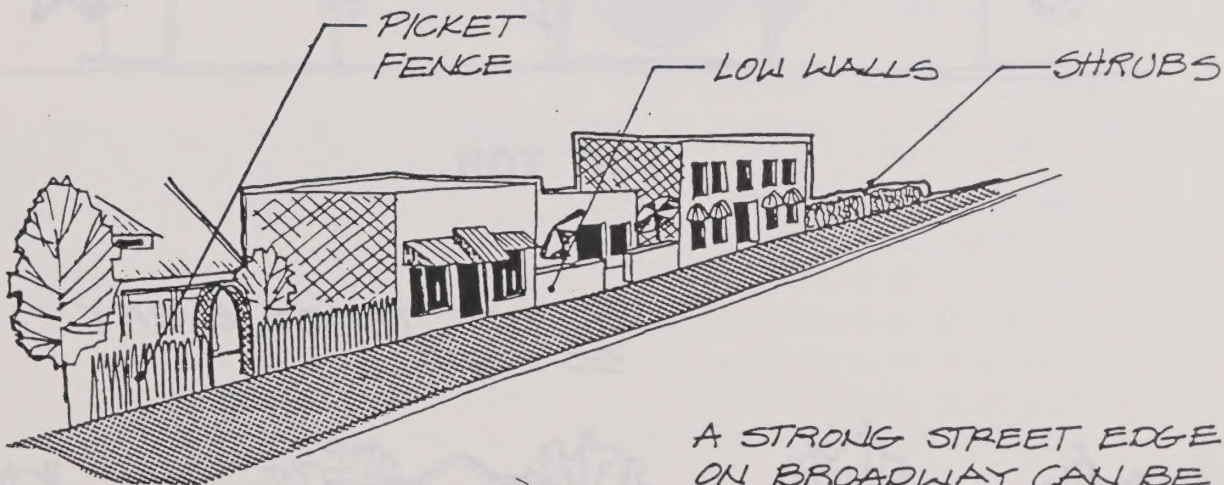
TEXTURED
CONCRETE

- Develop sidewalks that create a series of paths and linkages to bring the community together.

Intent: Make walking downtown from other parts of town an inviting and viable alternative to the automobile.

- Provide a continuous edge along Broadway with landscaping or a low wall/wood fence (Materials, page 18) where there is not a building adjacent to the sidewalk.

Intent: Define the pedestrian space along Broadway with an uninterrupted edge along the sidewalk.

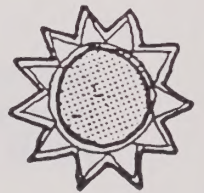


A STRONG STREET EDGE
ON BROADWAY CAN BE
MAINTAINED WHERE SETBACKS
VARY BY USE OF LOW
WALLS, FENCES AND SHRUB
AREAS

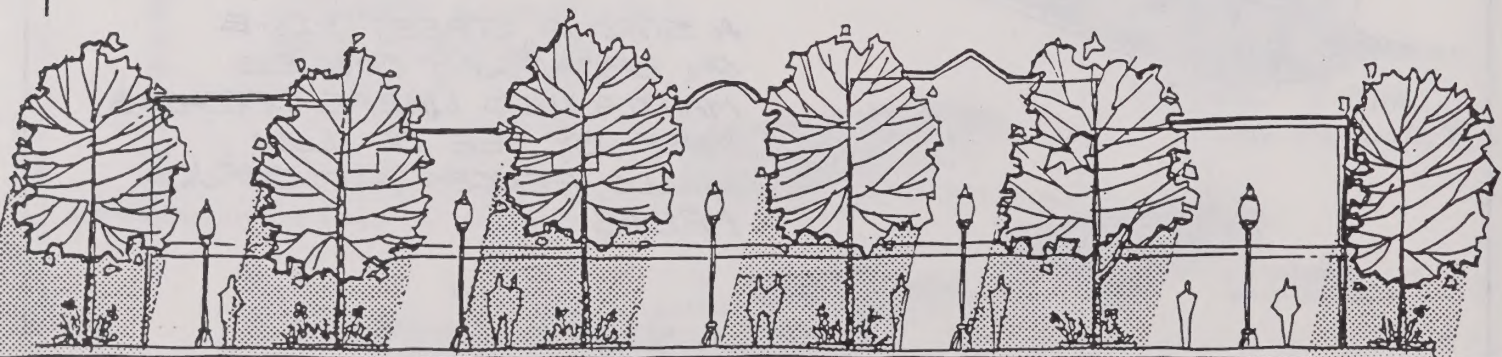
7. Landscaping: Creative use of landscape will soften building edges, enhance pedestrian scale, and the overall visual appearance of the downtown core.

- Encourage the use of planters, planter boxes, and street trees along Broadway.
- Provide street trees in front of every business or every 50 feet whichever provides the greatest number of trees. Condition new developments and rehabilitation of existing buildings to provide street trees.

Intent: Provide scale, softer edges, people spaces, shading definition of sidewalk space, aesthetics, and to add to the overall character of the downtown core.



STREET TREES EVERY
50 FEET

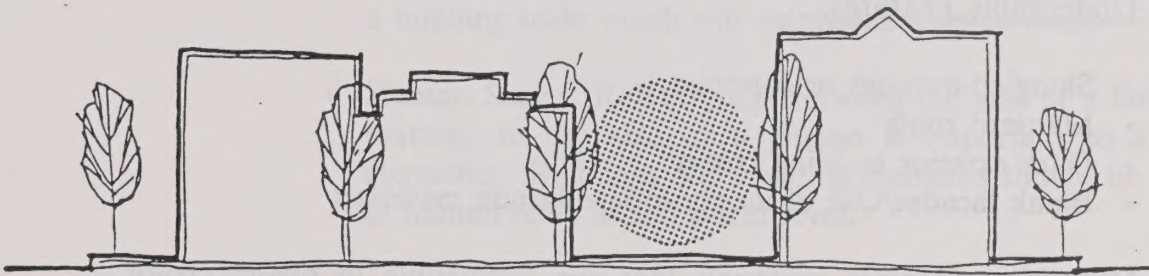


8. Infill: Vacant lots detract from the downtown and the pedestrian experience. Efforts to infill the empty lots should be made.

Intent: Develop a uniform facade along Broadway to enhance the pedestrian experience.

Refer to pages 15 and 32.

VACANT LOT DISRUPTS DOWNTOWN
PEDESTRIAN EXPERIENCE



NOT THIS

B. Architectural Guidelines

Integration of certain architectural features in the downtown buildings will restore and enhance Salida's historical past. Salida is a small agricultural town with a substantial historical influence from the railroad. The following architectural guidelines promote elements of a typical California agricultural/western town with historical railroad influence.

1. Desirable Features:

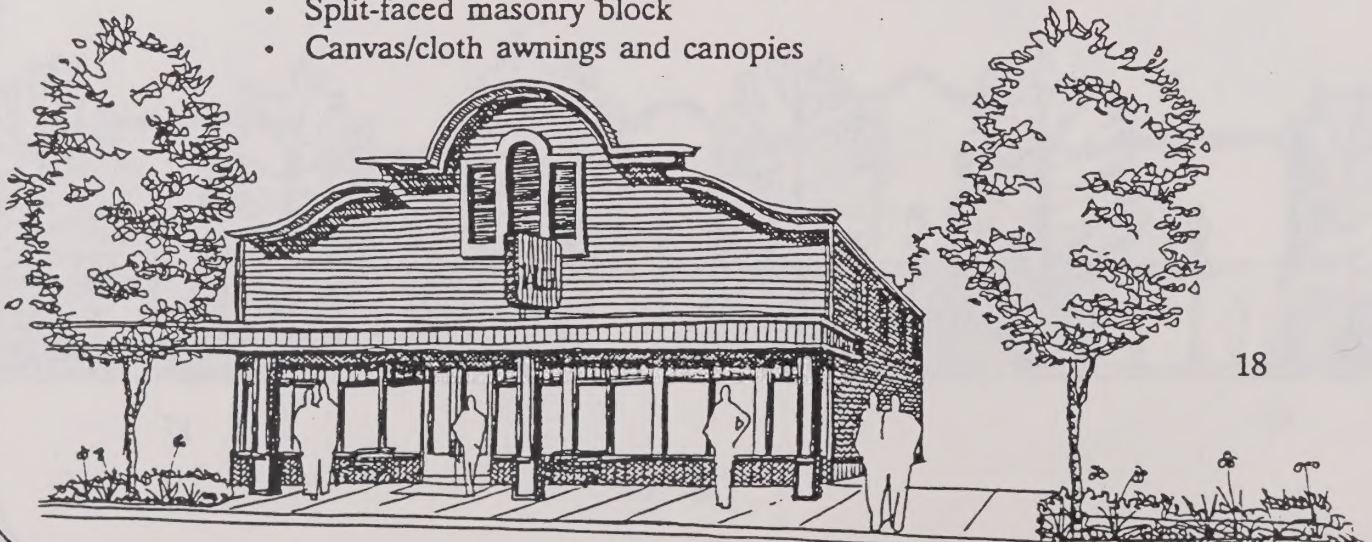
- Second story balconies and decks
- Decorative parapets and varying roof lines
- Plaster or lap siding both in light tones
- Recessed entries/facade relief
- Signage with historic significance

2. Undesirable Features:

- Shingled awnings or canopies
- Mansard roofs
- Dark exterior building colors
- Blank facades/Use of inappropriate facade materials

3. Materials: Require materials that are compatible in quality, color, texture, finish, and dimension to those existing downtown.

- Stucco (smooth finishes)
- Wood as primary and accent
- Brick as primary and accent
- River rock as primary and accent
- Unglazed tile as accent or roofing material
- Split-faced masonry block
- Canvas/cloth awnings and canopies



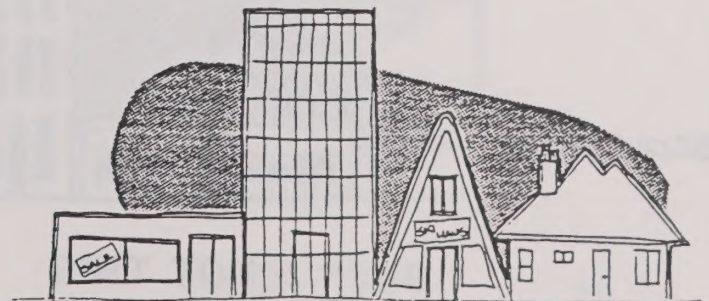
4. Rhythm, Massing, and Scale: Rhythm is a pattern reflected in the relationships of buildings or the components of a building to one another. Consistency in the massing and scale of buildings will begin to establish an appropriate rhythm for Salida's Downtown Commercial District.
- The massing of adjacent buildings should complement each other by maintaining relative consistency. The mass of the structure should be controlled by incorporating vertical and horizontal articulation that is consistent with adjacent buildings.
 - Building scale refers to the size and shape of a building as well as the building's components (i.e., windows, doors, canopies, etc.) The scale of building components should relate to the scale of the entire building, and building scale should be consistent throughout Salida's Commercial District. There should be greater emphasis on creating a building scale which will emphasize human scale.
 - Human Scale: Relationship between the size of a building and its features to the size of a person is important to a downtown's character. Buildings and building elements should be intimate and at human scale at the street level.



THIS

BUILDINGS COMPLIMENT EACH OTHER WITH CONSISTENT SCALE, WIDTH AND MASS

BUILDINGS TOTALLY UNRELATED



NOT THIS

5. Height and Width: Buildings should vary in height and width while remaining within the parameters of those set for the downtown.

- Require new buildings to be constructed at heights that are compatible with the height of existing adjacent buildings.

Intent: Create an interesting and appropriate roof line as a backdrop to Broadway.

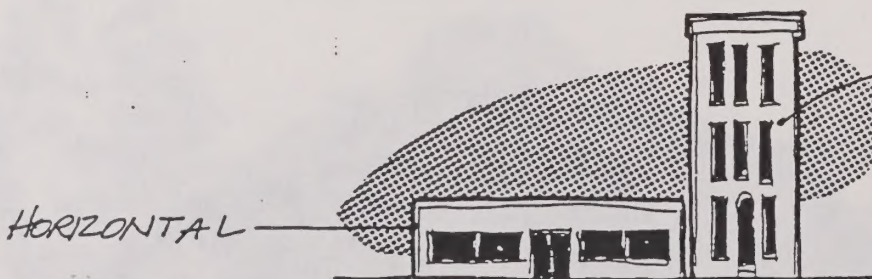
HEIGHT
VARIATION



THIS

CONSISTENT FACADE
WIDTH

6. Proportion: The relationship between the width to height of the front elevation of a building must be in proportion to those of the building's neighbors.



VERTICAL
ORIENTATION

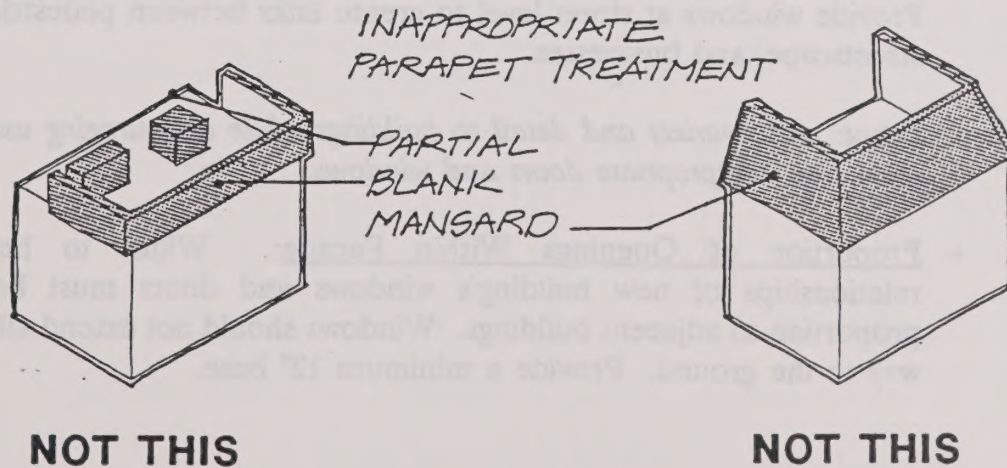
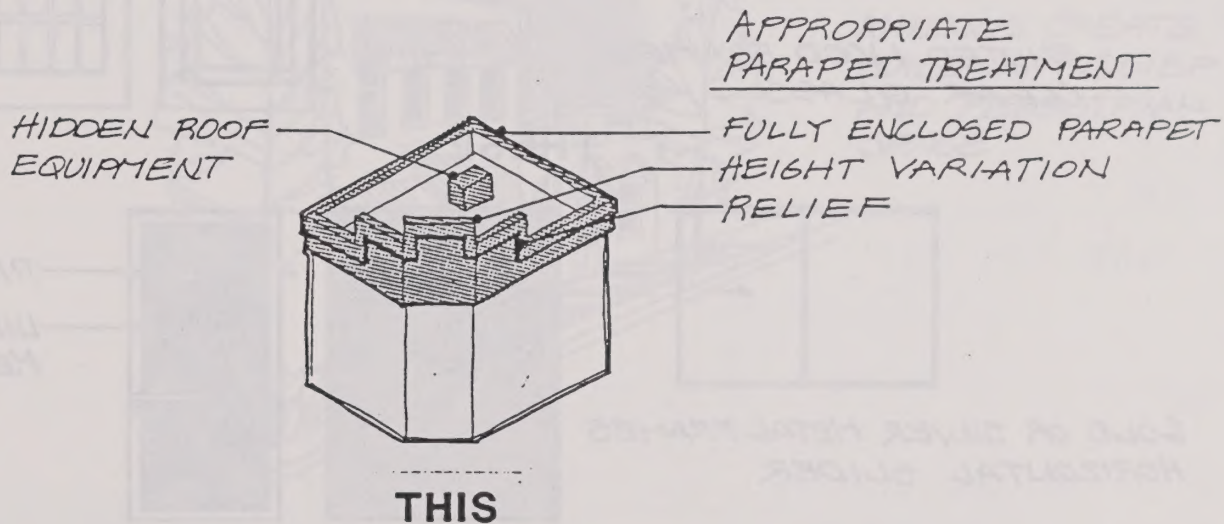
BUILDING PROPORTIONS
UNRELATED

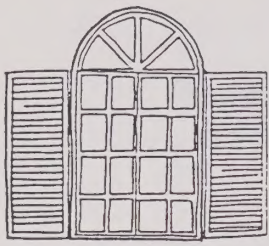
NOT THIS

7. Roofs: Roof lines of new structures should conform to existing parapet and false front roof lines found in the downtown and reflect the western theme of an agricultural/railroad town.

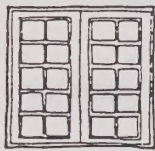
- Avoid blank parapets
- Provide relief and detail
- Conceal roof equipment
- Avoid pitched roofs or mansards

Intent: Encourage roofs which are consistent with existing roofs or buildings with historical significance.

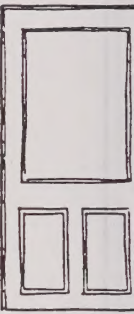
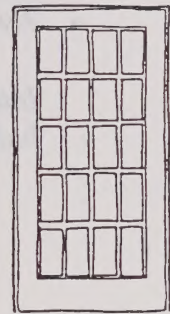
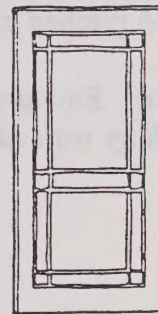




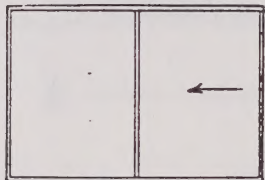
8. Doors and Windows: The style and proportions of doors and windows are very important elements for setting the character and style of buildings.



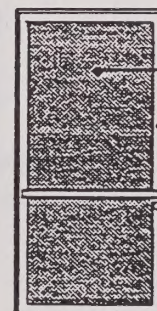
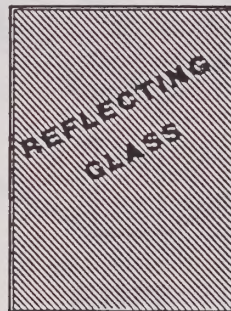
PAINTED WOOD FRAMES
CLEAR GLASS



THESE



GOLD OR SILVER METAL FRAMES
HORIZONTAL SLIDER



TINTED GLASS
UNPAINTED METAL

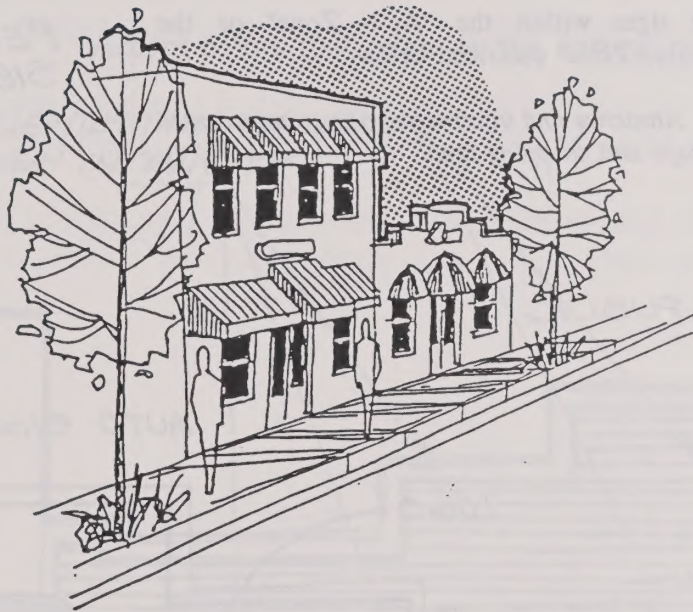
NOT THESE

- Provide windows at street level to create links between pedestrians, streetscape, and businesses.

Intent: Add variety and detail to buildings while discouraging use of plain and inappropriate doors and windows.

- Proportion of Openings Within Facade: Width to height relationships of new building's windows and doors must be in proportion to adjacent buildings. Windows should not extend all the way to the ground. Provide a minimum 12" base.

9. Awnings and Canopies: Encourage awnings and canopies for use over building openings. In addition to weather protection and shade, they add character, color, interest, scale, and identity to individual buildings. (See page 18 for desired awning and canopy materials).



AWNINGS CREATE
BUILDING RELIEF
AND PEDESTRIAN
SPACE

THIS

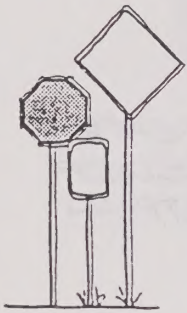
10. Signs: Require appropriate signage that relates to the size and scale of the business, to the pedestrian scale, and enhances the overall downtown image.

- Discourage building signs that advertise merchandise. They contribute to a cluttered and confusing streetscape. Discourage signs above the roof or parapet line.
- Suggested sign types are: Flush-mounted signs with individual cut letters, hanging signs, window signs, icon/graphic signs, externally lighted, neon tube signs, and awning signs.
- Locate signs within the "Auto Zone" or the "Pedestrian Zone" described below.

Intent: Attractive and informative pedestrian-oriented streetscape and shopping area.

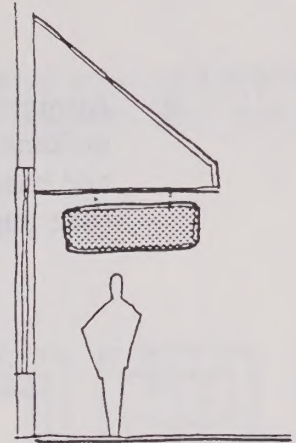


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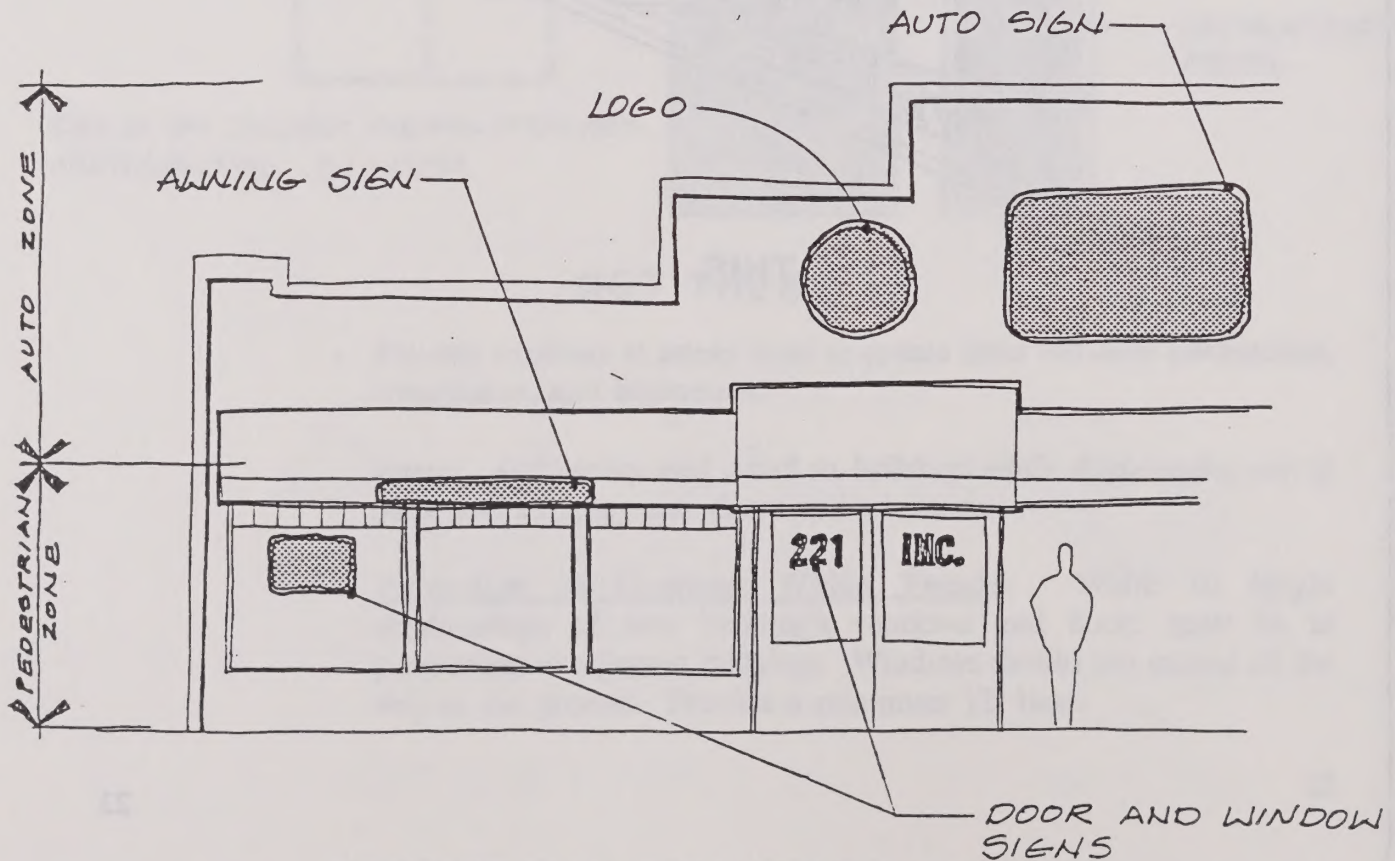


NOT THIS

CONDENSE PUBLIC
SIGNAGE



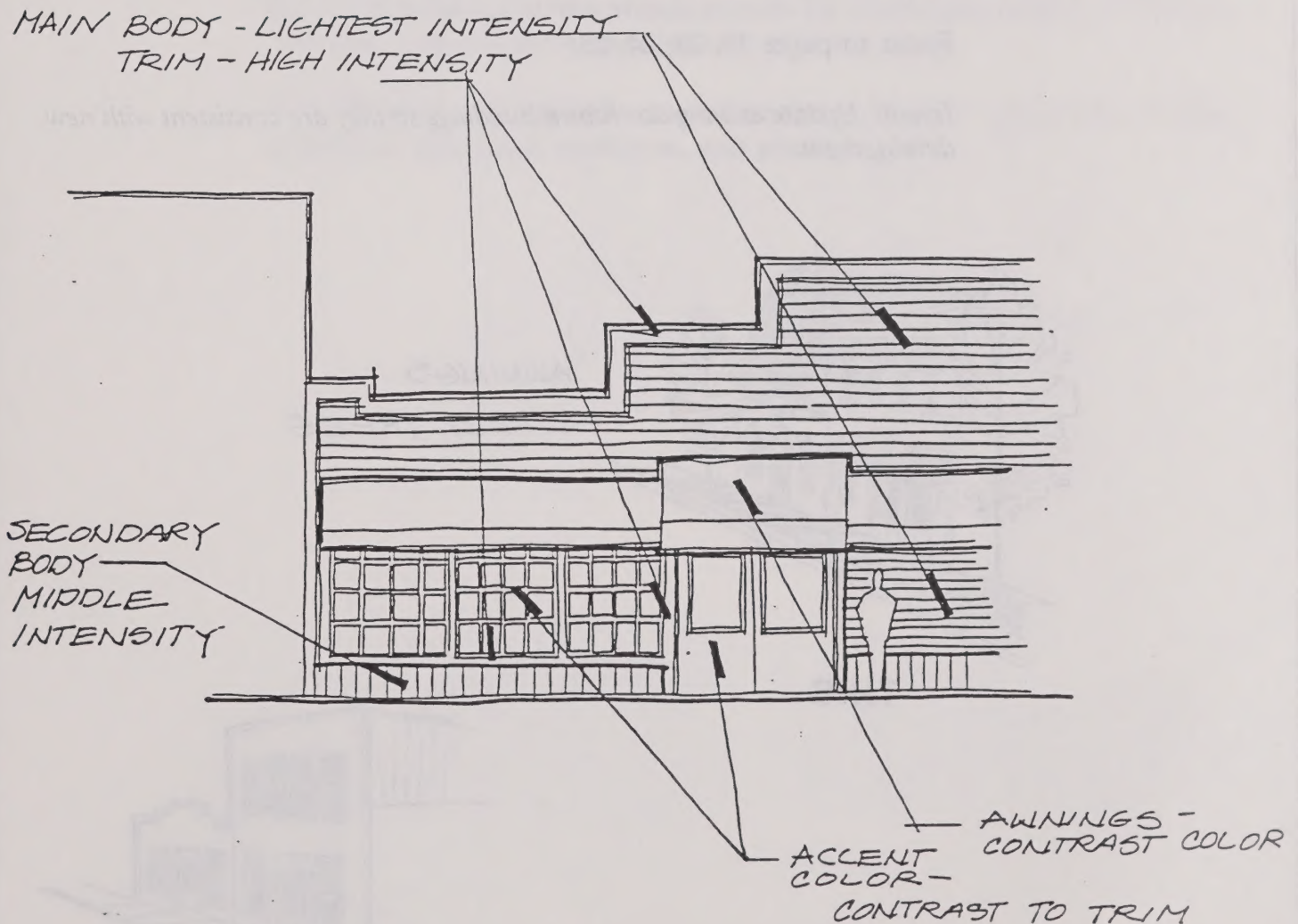
PEDESTRIAN
SIGNS



COMMERCIAL SIGN DIAGRAM

11. Colors: Colors and materials used on buildings are important in creating variation while maintaining an overall consistency in the downtown.

- Require larger buildings to be painted with subtle colors.
- Discourage intense hues of color and the use of more than one vivid color per building.
- Avoid colors that create disharmony with other buildings.
- Accept colors that relate to the natural materials of the building.



BUILDING PAINTING DIAGRAM

- Allow the use of contrasting colors to accentuate building entry features and architectural details.

Intent: Prevent inappropriate and unattractive painting schemes in the downtown area. Encourage consistency in overall color palette for the downtown.

12. Renovations and Remodeling: Encourage buildings which do not meet architectural design standards to conform by facilitating cosmetic changes such as: repainting, new signage, landscaping, cloth awnings, addition of street trees, and removal of undesirable features.

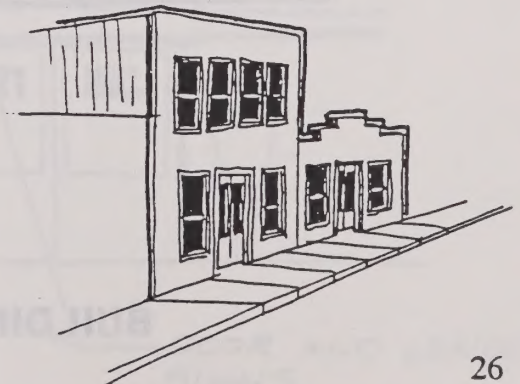
Refer to pages 16, 23, 24, 25.

Intent: Update existing downtown buildings so they are consistent with new development.



THIS

AWNINGS
STREET TREES



NOT THIS

C. Downtown Streets

Broadway as the main street in the commercial area is substandard. The street's current condition hinders circulation, disrupts parking, endangers pedestrians, and creates a negative image of downtown Salida.

Broadway has a 100-foot right-of-way (ROW). The existing space that is created by this ROW is too large to achieve pedestrian orientation along the street. Enhancement of the existing median by the addition of street improvements will restore human scale.

Salida's commercial streets should provide for circulation, parking, pedestrian movement, and create an aesthetically pleasing image.

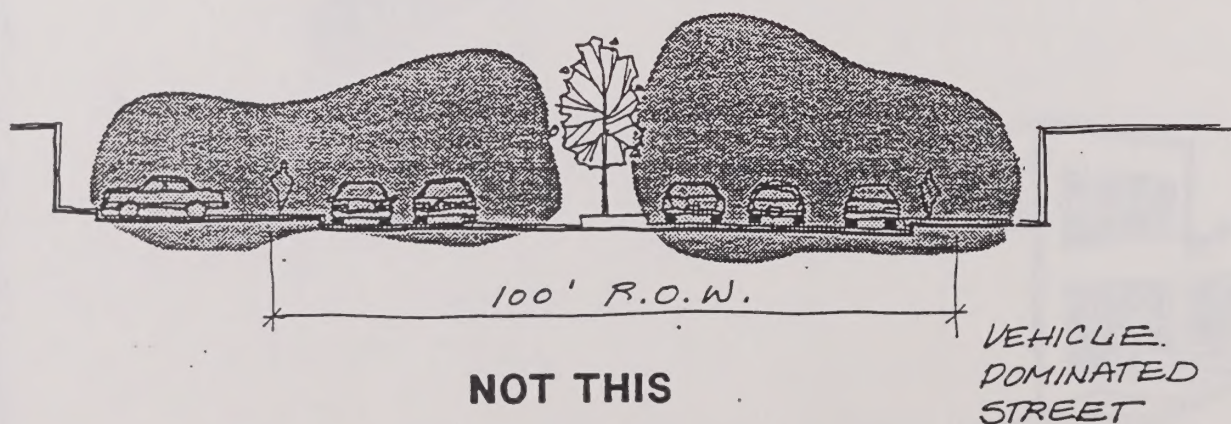
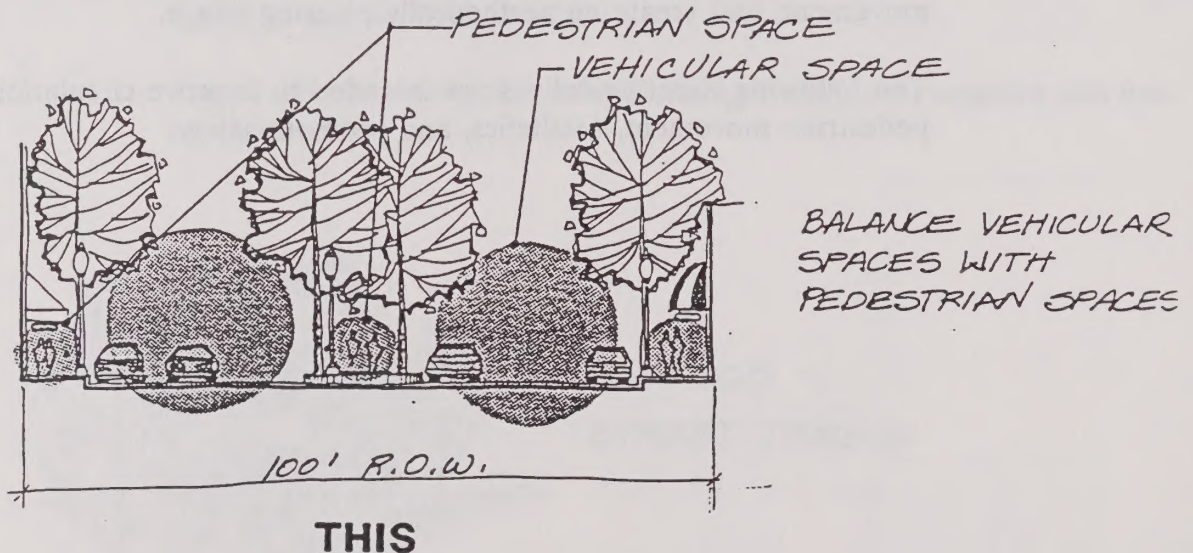
The following street guidelines are intended to improve circulation, parking, pedestrian movement, aesthetics, and promote safety.

1. Street Improvements and Design: Repave existing commercial streets, provide line striping, curb gutters and sidewalks, on-street parking (either parallel or angled).

Refer to pages 13, 14.

- Design streets to safely accommodate all forms of local transportation such as trucks, car, bicycles, and pedestrians.

Intent: Promote walking and bicycle riding as energy efficient alternatives to automobiles, also minimize the impact of delivery trucks on traffic flow and parking.

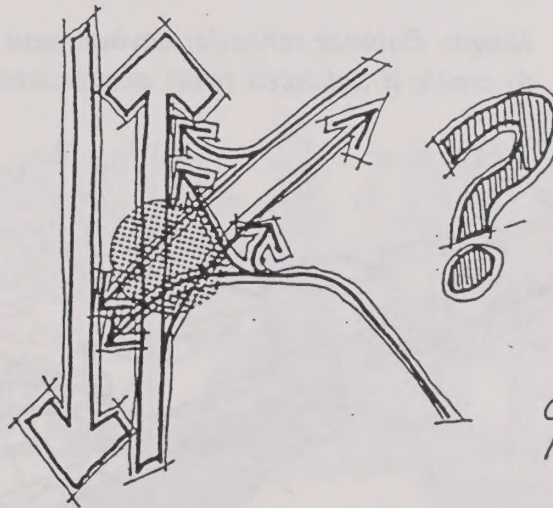


2. On-Street Parking: On-street parking provides a buffer between the pedestrian and vehicular traffic and is essential to the economic vitality of the downtown district.

- Provide designated on-street parking wherever possible on Broadway. Every effort should be made to maximize the number of available stalls (i.e. diagonal on-street parking).

Intent: Maximize convenient parking opportunities in the downtown.

3. Circulation: Re-engineer intersections where necessary to provide safer and more logical traffic circulation.



NOT THIS

CONFUSING
INTERSECTION

4. Traffic Speed: Design roads to encourage traffic flow at a safe rate of speed. Post speed limit accordingly.

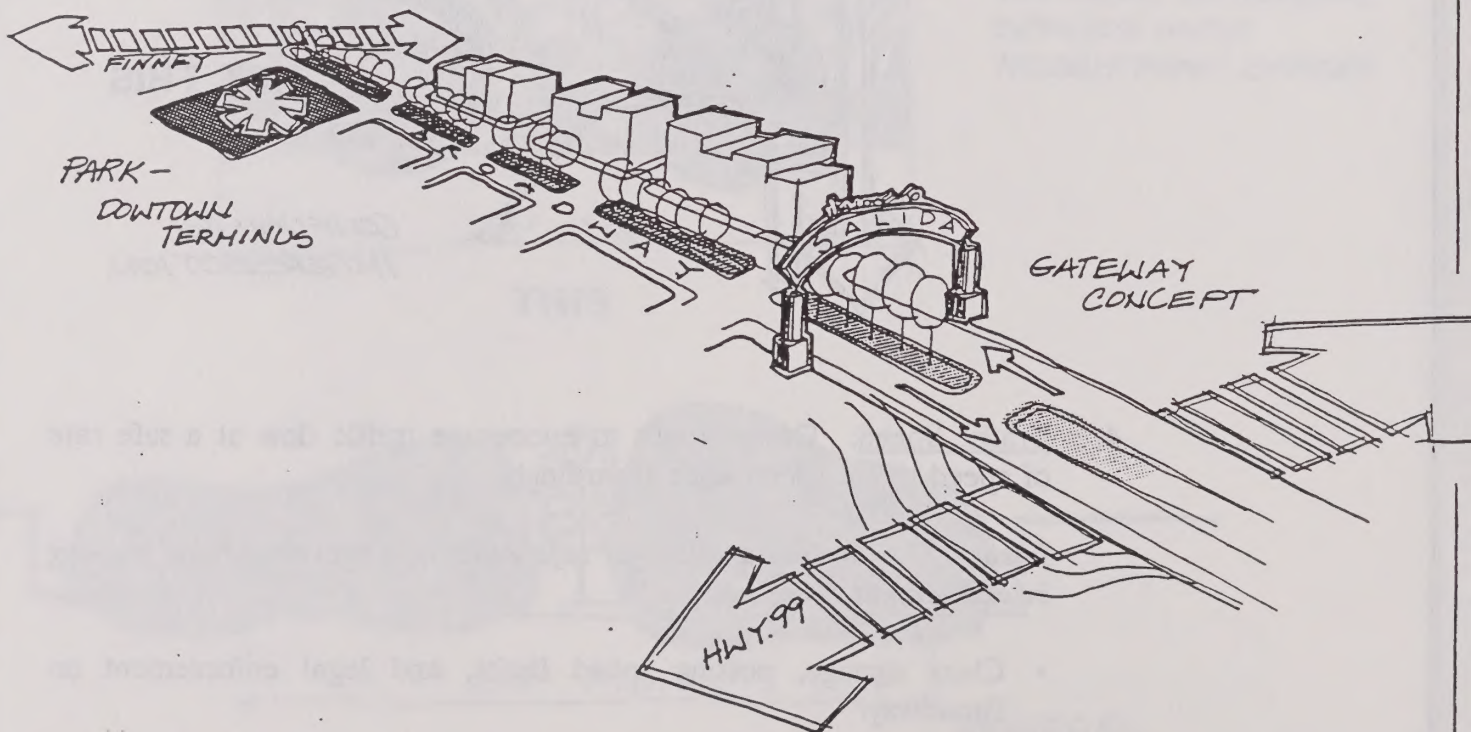
Intent: Slow traffic to allow for safe pedestrian movement and parking in and around Broadway.

- Clear signage, posting speed limits, and legal enforcement on Broadway.
- Stop sign placement at all intersections on Broadway.

5. Median Treatment: The existing median is a large unimproved area located in only a small section of Broadway. The median is currently used as a make shift parking lot and contains mature landmark trees.
- The median design should extend to other portions of the Broadway corridor. Curbs, sidewalks, lawn, trees, and other park-like amenities should be incorporated into the median design.
 - Care to existing median trees should be observed during any improvements to the median.
 - The median should provide aesthetic and visual cohesion to the downtown.

Refer to page 55.

Intent: Balance vehicular environment with the pedestrian environment to create a balanced street environment.

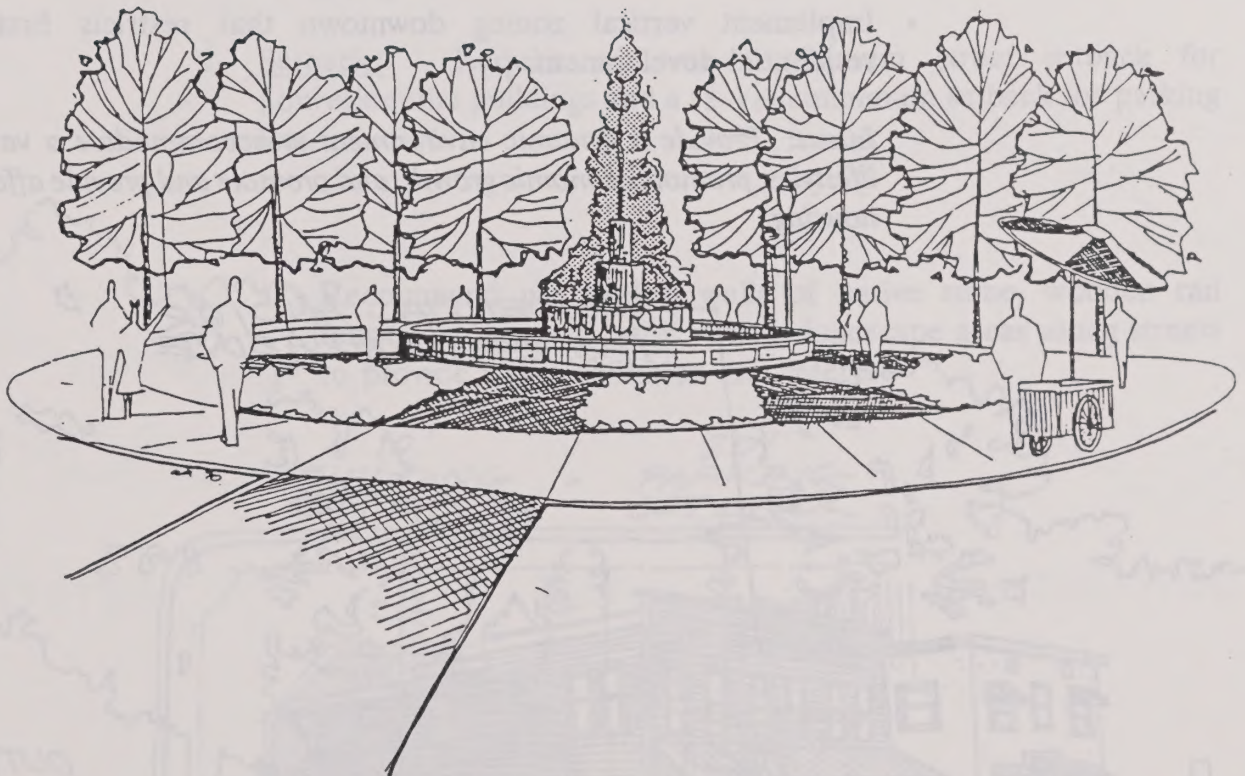


DOWNTOWN CONCEPT

6. Gateway: The intersection of Broadway and Old Highway 99 provides an opportunity for commercial development and, also could provide a gateway to downtown.

Intent: Gateway to serve as a community landmark to highway travelers as well as define the edge of the downtown commercial area.

7. Landmarks: Landmarks serve an important function in defining spaces and increasing the identity and orientation of an area. Encourage appropriate use of landmarks throughout Salida.



D. Economic Development

According to the Stanislaus County Redevelopment Feasibility Assessment, Salida's downtown is ideally positioned to take advantage of growth occurring on the community's fringes. Therefore, Salida should develop a diverse and strong business community.

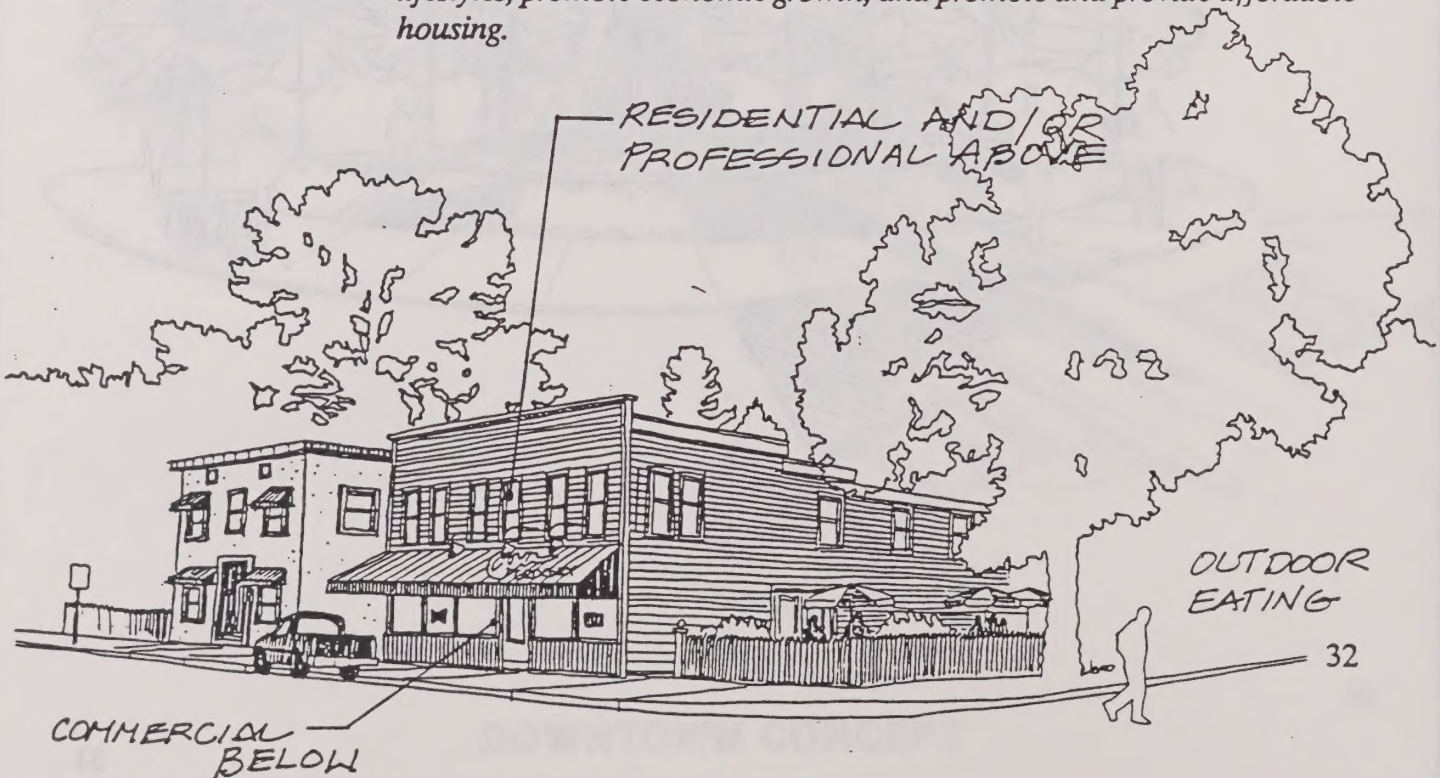
1. New Businesses: Encourage new viable businesses and services to locate in the Salida downtown. Refer to page 17.

Intent: Create an economically viable commercial and service center in downtown Salida.

2. Mixed Uses: Encourage a variety of mixed uses in the downtown (commercial, service, residential, professional).

- Encourage residential development downtown to increase the hours of activity in the area.
- Implement vertical zoning downtown that restricts first floor residential development.

Intent: Provide a dynamic environment to accommodate a variety of lifestyles, promote economic growth, and promote and provide affordable housing.



MIXED USE DEVELOPMENT

II. NONRESIDENTIAL DISTRICT

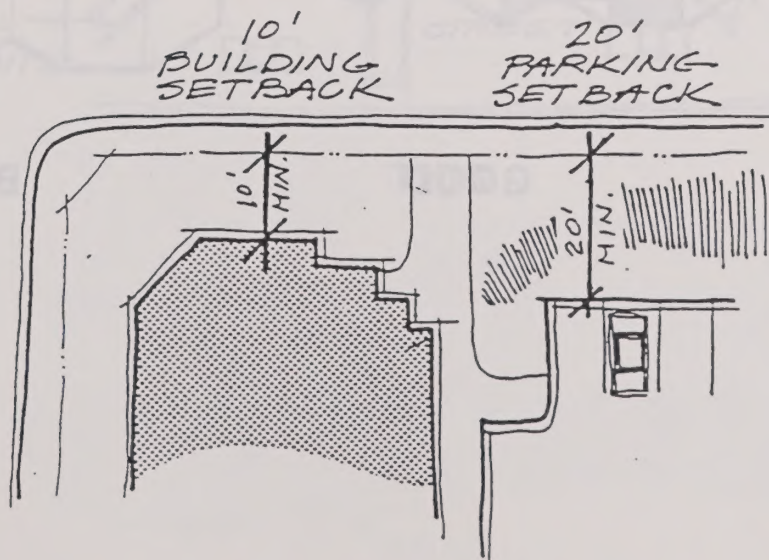
Outside Salida's main downtown commercial district, there are several commercial, office, public service, and industrial areas. The following guidelines apply to all areas that are outside the Broadway "downtown commercial" core and are not zoned residential.

These areas are lacking in site planning, architectural consistency, and road improvement standards. The guidelines will help obtain basic consistencies to enhance and improve pedestrian movement and safety, traffic flow, parking, and aesthetic appearance of these areas.

Goal: Create an aesthetically-pleasing secondary commercial district that functions economically while enhancing Salida's small town character.

A. Site Planning

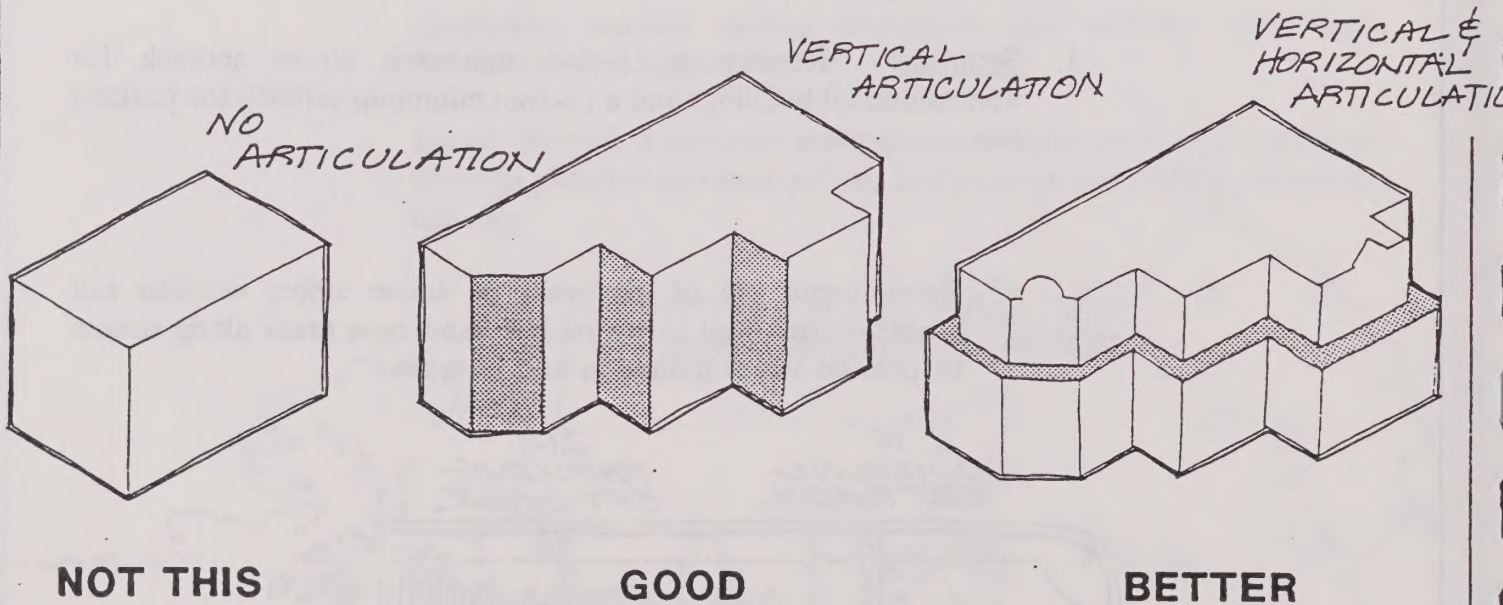
1. Setbacks: Require a 15-foot minimum street setback for nonresidential buildings and a 15-foot minimum setback for parking lots.
- Recommend use of low walls of native stone, wooden rail fences, berms, and native rock in landscape areas along streets to provide visual definition and interest.



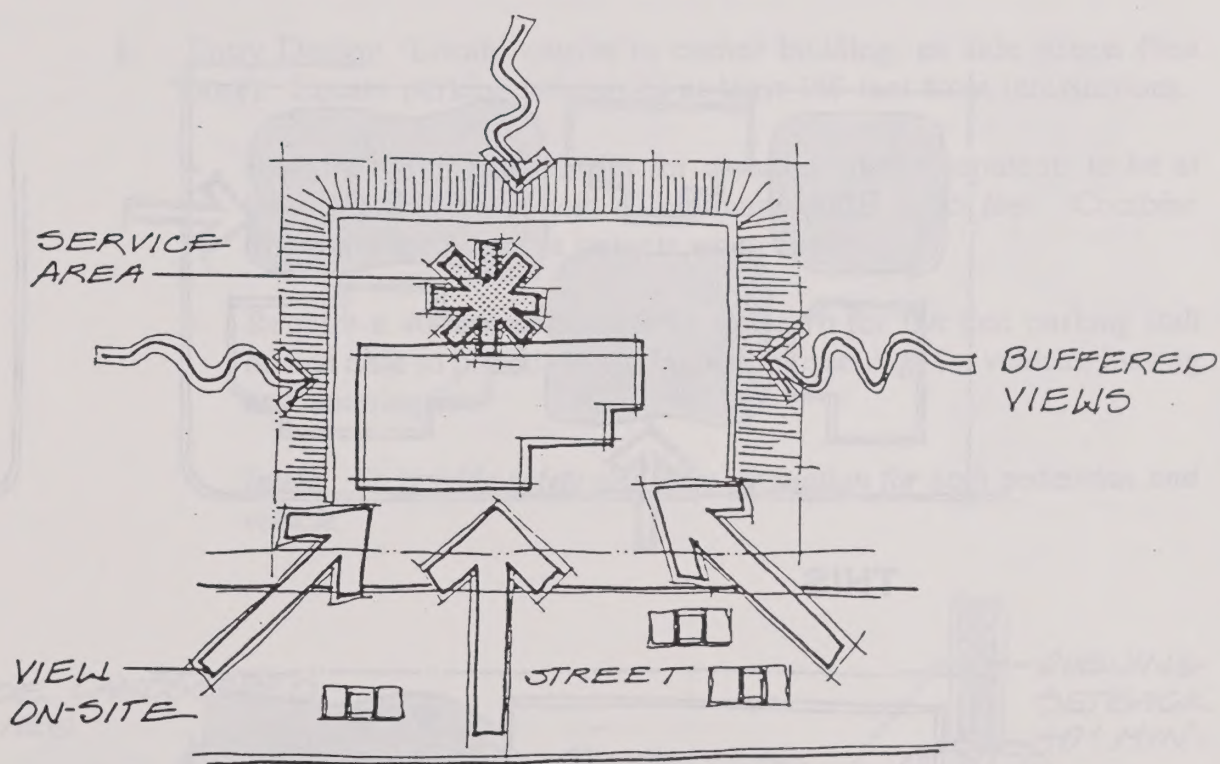
2. Building Location: Locate buildings adjacent to at least 25% of the road to minimize parking lot frontage. Provide a minimum of one public street entrance. Relate to adjacent buildings and avoid double blank walls that face each other at a property line.

Intent: Avoid parking lot dominated streetscape of all nonresidential areas.

3. Building Coverage: Limit all site disturbance involving grading, building, and parking lots to 70% of the total site, excluding setbacks. The remaining should be left in open space and landscaping.
4. Building Footprint: Articulate building footprints by use of insets, corners, and jogs that emphasize pedestrian movement and interest.

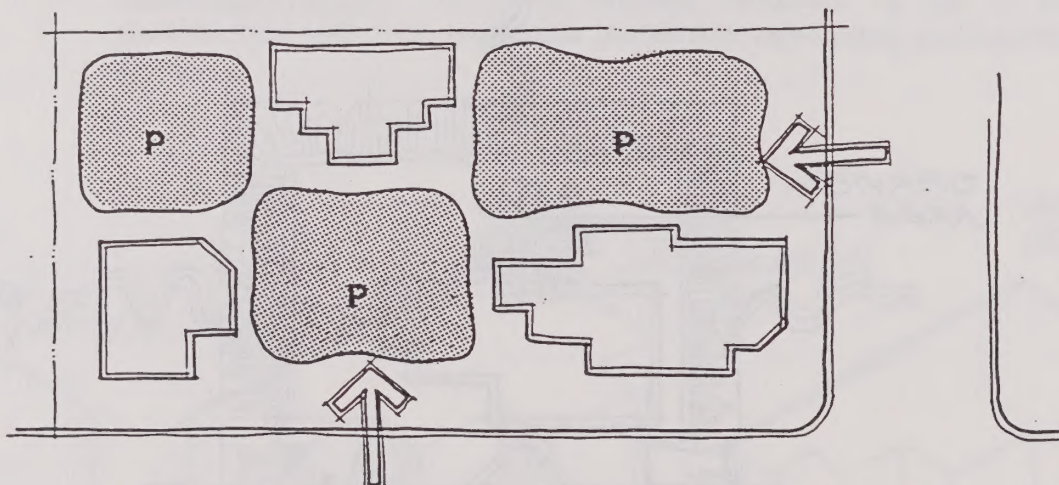


5. Service Areas: Orient buildings to hide all service and storage areas from public street view. Incorporate these areas into the main building whenever possible.
6. Utility Areas: Locate utility areas such as meter boxes, water meters, trash dumpsters, etc. to the rear of building or screen them from street view.

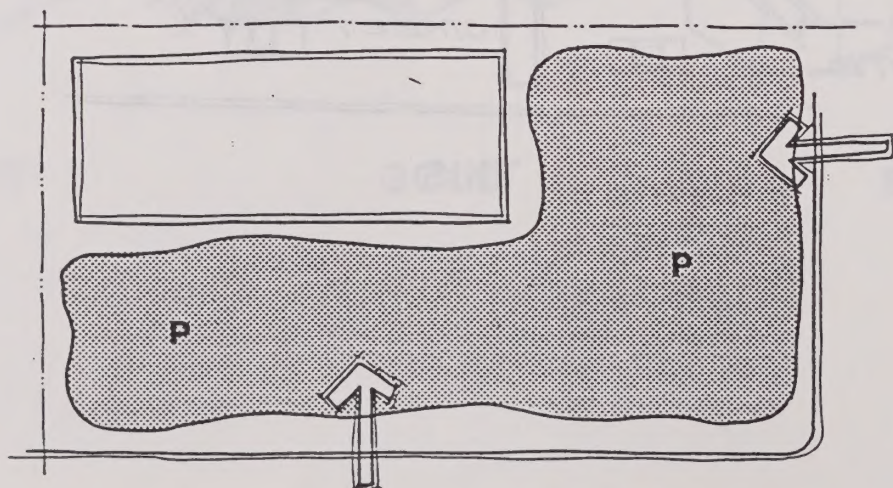


THIS

7. Parking Lot Design: Encourage use of landscaping and enhanced paving surfaces (i.e. stamped concrete, paver tiles, etc.) to minimize large expanses of uninterrupted pavement areas.
- Orient parking aisles perpendicular to the building entrance.
 - Inter-relate parking lots (whenever possible) with adjacent parcels to provide pedestrian and vehicular connection.
 - Lot Building Transition: Maintain a transition space between parking lot and building. Require a 5-foot wide minimum space with landscaping.



THIS



NOT THIS

- Landscape: Encourage canopy tree landscaping in parking areas, and special landscaping treatment for parking lot entrances.
 - Provide:
 - Planted islands or breaks (5-foot wide minimum) every six spaces
 - Two trees each break
 - 15-gallon minimum tree size
 - Two trees at the end of each row of spaces
8. Entry Design: Locate entries to corner buildings on side streets (less busy). Locate parking lot entries at least 150 feet from intersections.
- Require parking lot entries for commercial developments to be at least 200 feet apart and a minimum width of 25 feet. Combine driveways for adjacent parcels when feasible.
 - Require a 40-foot setback from the curb for the first parking stall or first aisle to provide a waiting space (queuing) for vehicles leaving and entering lot.

Intent: To provide safety and easy circulation for both pedestrian and vehicle.

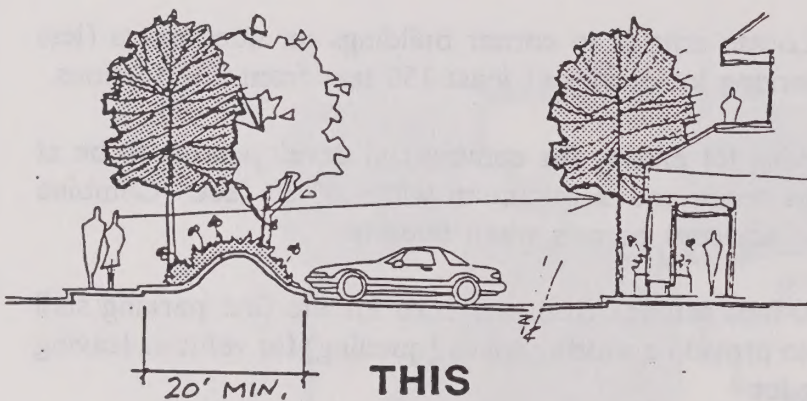
PROVIDE LANDSCAPED
ENTRIES

QUEUING
SETBACK
40' MIN.

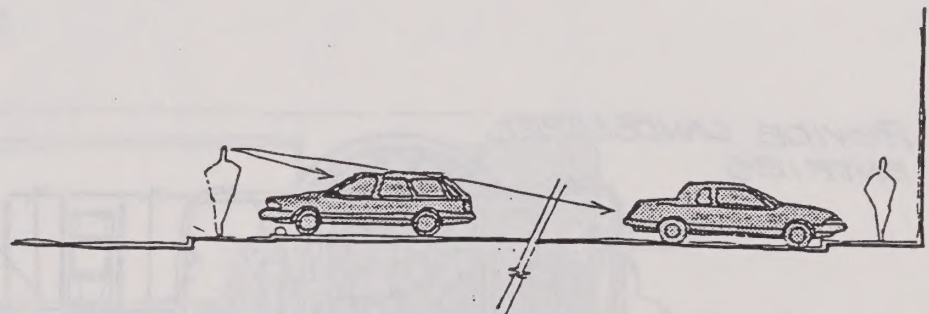
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9. Screening: Provide landscape screening to parking lots.

- Shrub areas between major streets and parking lots.
- Grade differential between public street and parking lots.
- Low wall (3'-6" maximum height) with landscaping.



PARKING LOTS SHOULD
SETBACK 20 FEET (MIN.)
AND PROVIDE SCREENING
WITH LANDSCAPING OR
BERMS



B. Architectural Guidelines

The town of Salida is currently a mix of architectural styles. The town history denotes that a small agricultural theme is appropriate. The following architectural guidelines will help maintain and emphasize the agricultural vernacular in the nonresidential areas.

1. Desirable Elements:

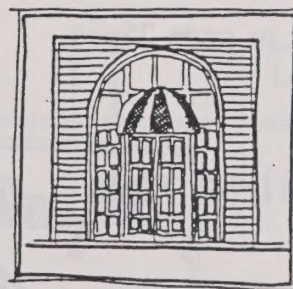
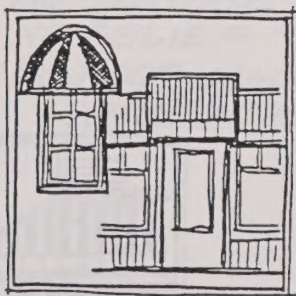
- Richness and texture (see Materials Guide, page 40)
- Significant wall articulation and interest (insets, jogs, canopies, etc.)
- Distinctive massing (barn, western false fronts, multi-level, multi-planed pitched roofs)
- Wide roof overhangs
- Distinctive entries
- Shingled awnings or canopies

2. Undesirable Elements:

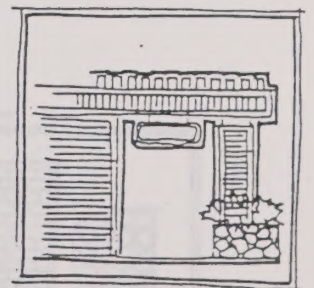
- Highly reflective surfaces
- Large blank, unarticulated wall surfaces
- Unpainted concrete block
- Extensive flat roofs
- Unarticulated roof lines and parapets
- Irregular or contemporary window shapes
- Shingled awnings/canopies



STORE FRONTS



ENTRIES



PEDESTRIAN SPACE

3. Appropriate Materials:

- Stucco (smooth finishes)
- Wood as primary and accent
- Brick as primary and accent
- River rock as primary and accent
- Unglazed tile as accent or roofing material
- Split-face masonry block
- Cloth/canvas awnings

4. Inappropriate Materials:

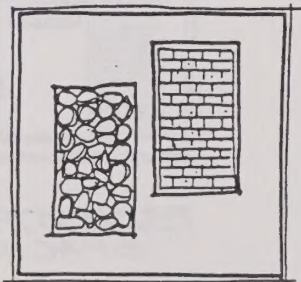
- Large uniform expanses of metal or aluminum siding
- Log cabin look
- Unfinished concrete block unfinished concrete tilt-up
- Painted or white brick
- Prefab metal structures
- Lava rock facades

5. Height and Scale: Height and scale of new development should relate to surrounding development. New development should provide transition in height and scale to adjacent development.

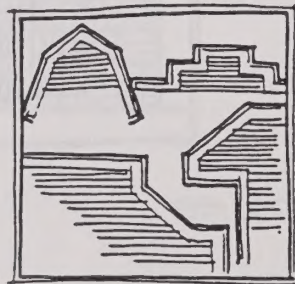
6. Color-Dominant/Accents:

- Dominant Color: Use earth tone colors for the dominant building color.
- Accent Color: Highlight the dominant color with accent colors to provide contrast or harmony with dominant colors.

Refer to page 25. ~



STONE AND
BRICK

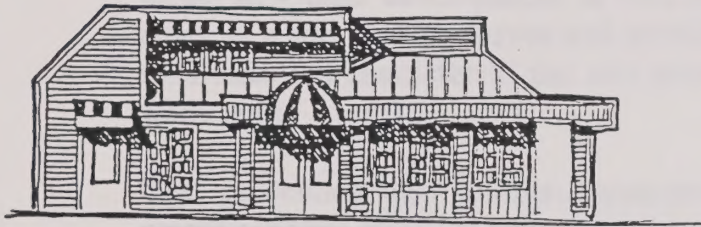


ROOF LINES



BALCONIES

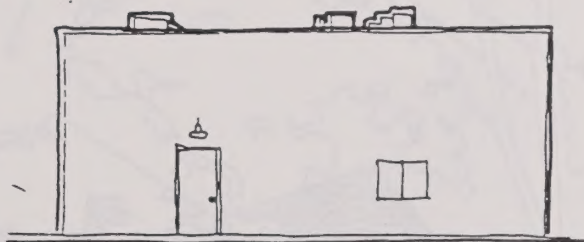
7. Solid to Void: Main (front, main building entry) facade construction should be at least 30% transparent. Avoid blank or solid end walls that are visible from public view. Provide elements such as awnings, cornice bands, arcades, trellises, etc. to avoid blank or solid walls which are visible from off site.
8. Roofs: Flat or sloped roofs are acceptable while partial mansard roofs are not. Design roof form to work with the building mass and facade to produce a consistent and integrated composition. Roof design should conceal rooftop equipment.



POSSIBLE USE OF TEXTURE,
RELIEF, ARTICULATION
(WALL AND ROOF)

THIS

100% SOLID
NO TEXTURE
NO RELIEF
NO ROOF, WALL -
ARTICULATION



NOT THIS

C. Streets

Improvement to streets in the nonresidential districts of Salida should increase convenience and safety and provide alternatives to existing primary routes (Broadway).

Special attention should be given to "Old" Highway 99 (Salida Boulevard). Because of its proximity to the "New" Highway 99, the ROW of "Old" Highway 99 holds the potential for commercial, retail, and service development. Improved traffic circulation will increase development opportunities within this area.

III. RESIDENTIAL

The residential portion of the redevelopment area consists of two major eras of homes. Residential Area A consists mostly of homes built in the early 1900's and the other (Residential Area B) includes homes that were built in the 1960's (see area map, page 8). The condition of houses varies from good to deteriorating and abandoned. The residential neighborhoods of Salida should provide adequate housing and satisfactory quality of life for people of all ages, incomes, and social backgrounds, while maintaining the small town scale and style.

The following guidelines address these residential neighborhood areas. These guidelines are more generalized than the "Downtown Commercial District" and the "Nonresidential District" guidelines. The guidelines' intent is to direct new infill development as well as the renovation of existing housing stock in a way that preserves and enriches Salida's small town character and maintains the character of the two eras in which the majority of the homes were built.

The guidelines also address concerns over how the newer residential neighborhoods interface with the older residential neighborhoods. Currently, there are residential subdivisions being built adjacent to the established residential neighborhoods that have incorporated +6-foot solid perimeter walls with homes that turn their back to the street. By doing so, isolated enclaves of neighborhoods are created that do not visually or functionally relate. These guidelines will encourage neighborhood designs that provide visual, pedestrian, and vehicular links.

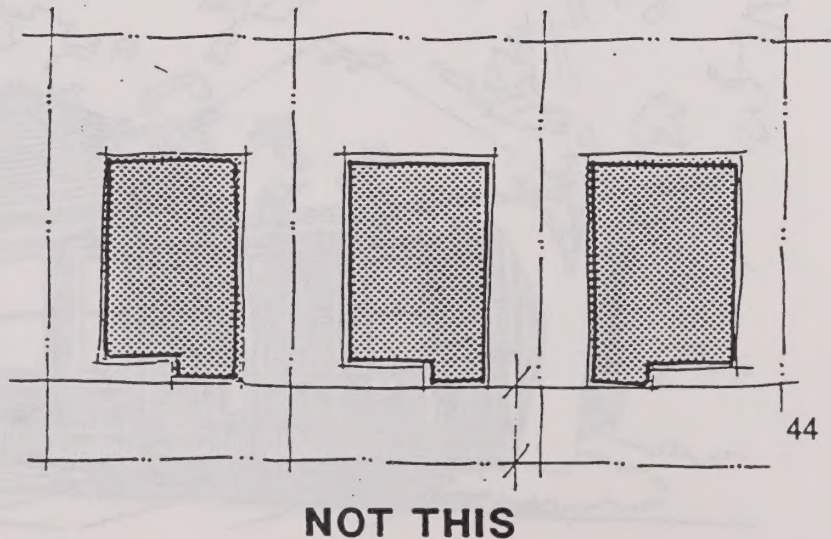
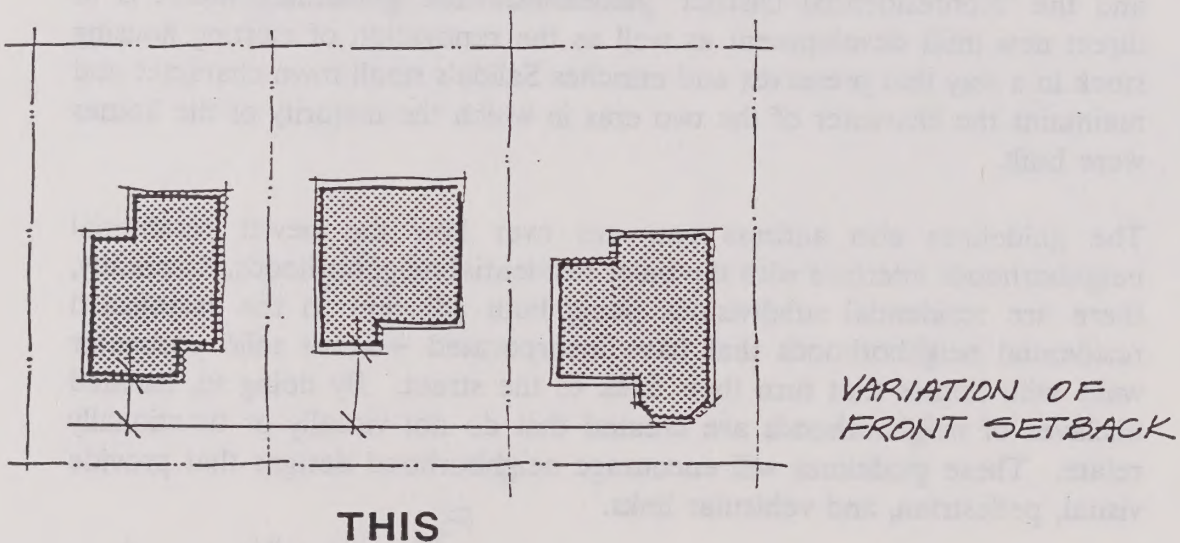


Goal: Improve the appearance and condition of the existing housing stock and neighborhoods to provide housing for a variety of income groups, safety for residents, a sense of neighborhood, and area rejuvenation.

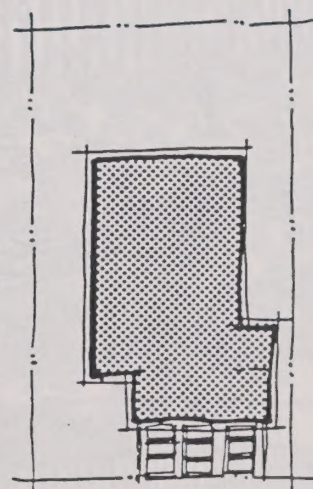
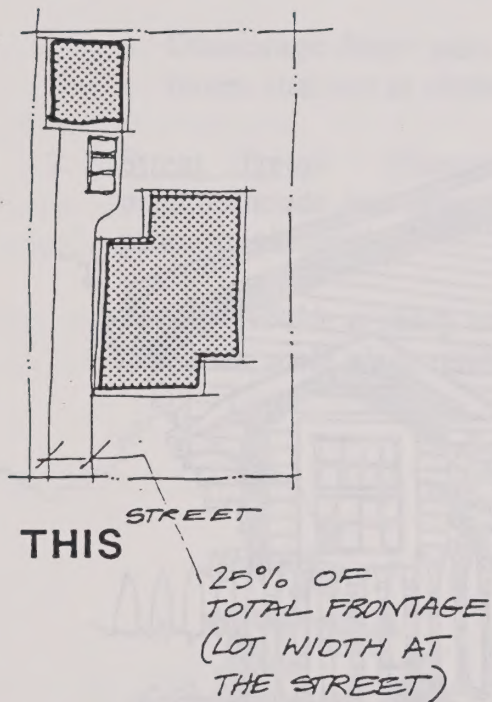
A. Site Planning Guidelines

1. **Setbacks:** Each housing unit should vary in setback (say 10%) yet maintain enough street setback to prevent crowding the street. Encourage traditional side lot setbacks. Discourage zero lot lines.

Intent: Discourage house siting that conflicts with the existing neighborhood character.



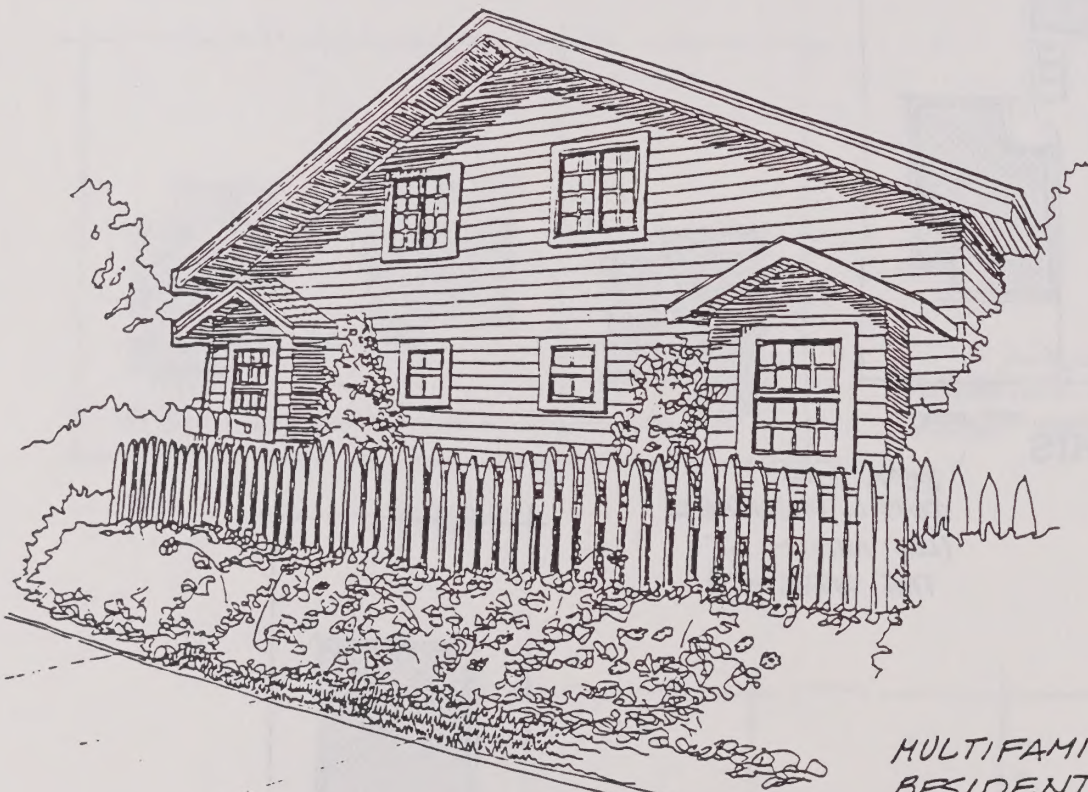
2. Driveway Frontage: Driveway openings may occupy no more than 25% or 18 feet of the lot's total street frontage whichever is less. However, in no case should a driveway opening be less than 10 feet.



3. Infill Housing: Develop vacant lots with a variety of new housing types to meet the various housing demands of the community.

- Relate residential infill development to the surrounding neighborhood.

Intent: Encourage infill housing which would provide quality housing for people from a variety of income and social groups and be compatible with surrounding housing.

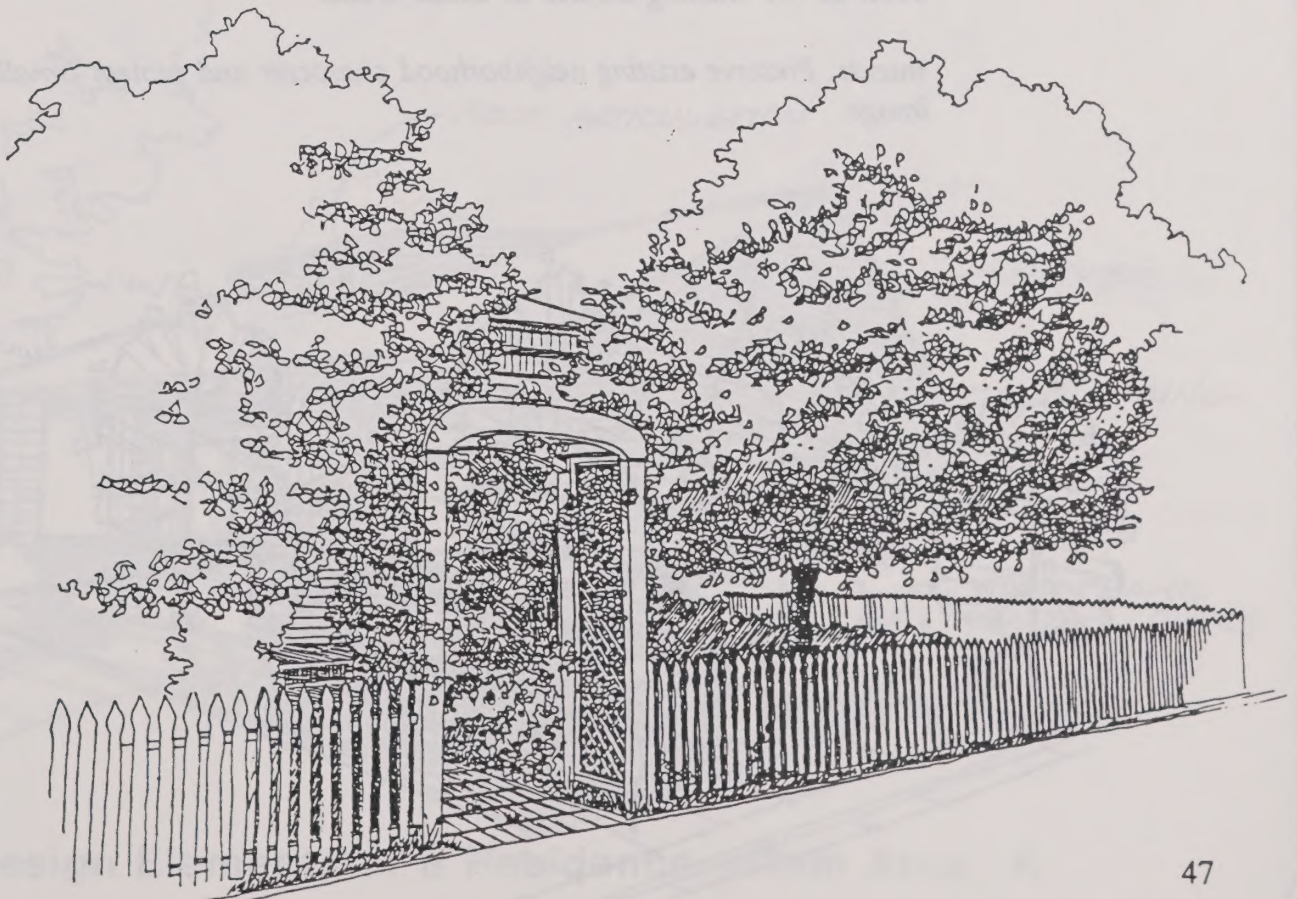


MULTIFAMILY
RESIDENTIAL
DEVELOPMENT TO
FIT THE SCALE
AND CHARACTER
OF THE RESIDENTIAL
NEIGHBORHOOD
(AREA A).

B. Landscaping

1. Fencing: Proper front yard fencing is an important part of maintaining the neighborhood's image and ensuring defensible space for safety. Limit fencing to simple picket fences and low garden walls.
 - Define public and private space with landscaping and low garden walls or fences at the inside edge of the sidewalk.
 - Discourage front yard perimeter fences and walls and chainlink fences that act as visual barriers in front yards.
2. Street Trees: Encourage street trees in existing residential neighborhoods and new developments. Plant trees every 30 feet (15 gallon minimum).

Intent: Provide a shady canopy in residential neighborhoods and create pedestrian scale along residential streets.

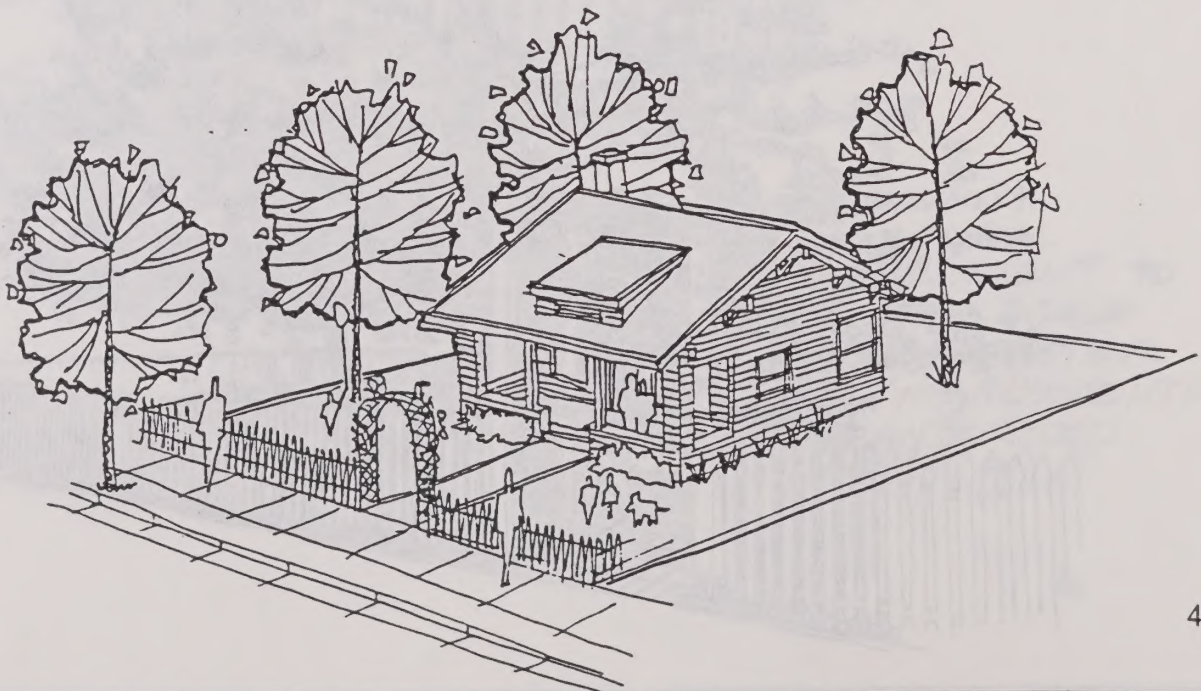


C. Architectural Guidelines

1. Renovation: Improve the condition of existing neighborhood housing that is in poor condition.
 - Preserve, whenever possible, existing structures which display desirable character. Renovation, remodeling, and improvements should respect and enhance any established neighborhood character.
2. Traditional Design Elements: Homes built in the early 1900's lack typical design elements such as porches, low walls, and picket fences at the sidewalk's edge and garages and carports to rear of the property as well as other traditional residential features (see page 49). Homes built in the 1960's were auto-oriented and had a different look such as garages facing the front, and ranch style layout (see page 50).

Efforts to maintain the character of these two sub areas of homes should be made by respecting the predominant agricultural character of each of the existing homes in these areas.

Intent: Preserve existing neighborhood character and protect "small town" image.



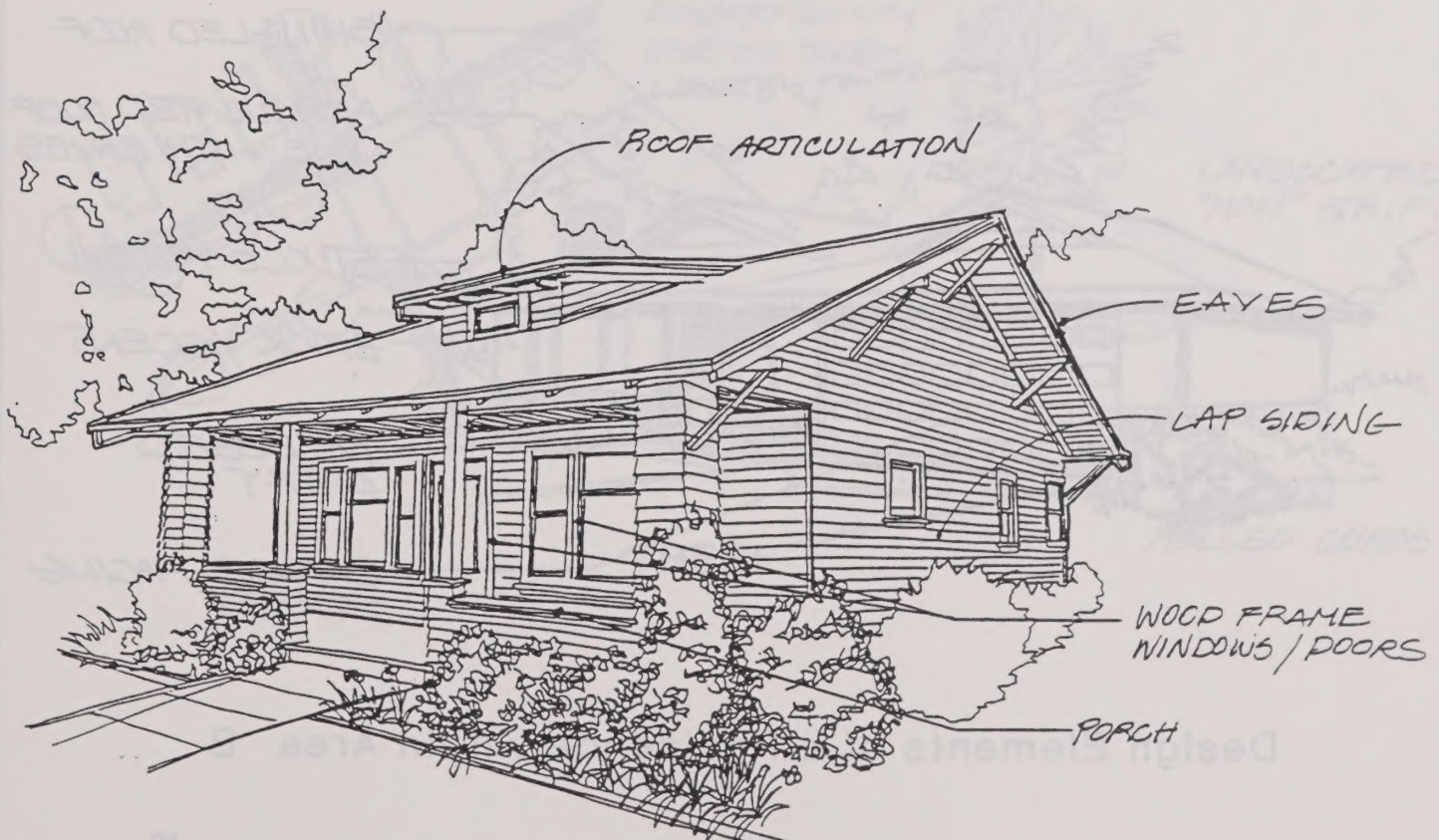
3. Height and Scale: Height and scale of homes should reflect the established pattern in the existing neighborhood.
4. Materials: Materials consisting of simple lap siding, brick, river rock, and smooth stucco are common and reflect the proper image of the neighborhood. Materials used should be consistent with adjacent homes.

Intent: Encourage new and remodeled houses and apartments to use materials which characterize the immediate neighborhood.

5. Doors and Windows: Doors and windows should reflect the neighborhood's era. Features like multi-paned glass, greater vertical proportions than width windows, glass doors, window shutters, and cloth awnings are desirable.

Intent: Preserve a continuity between existing historical structures and new buildings.

Refer to page 22.

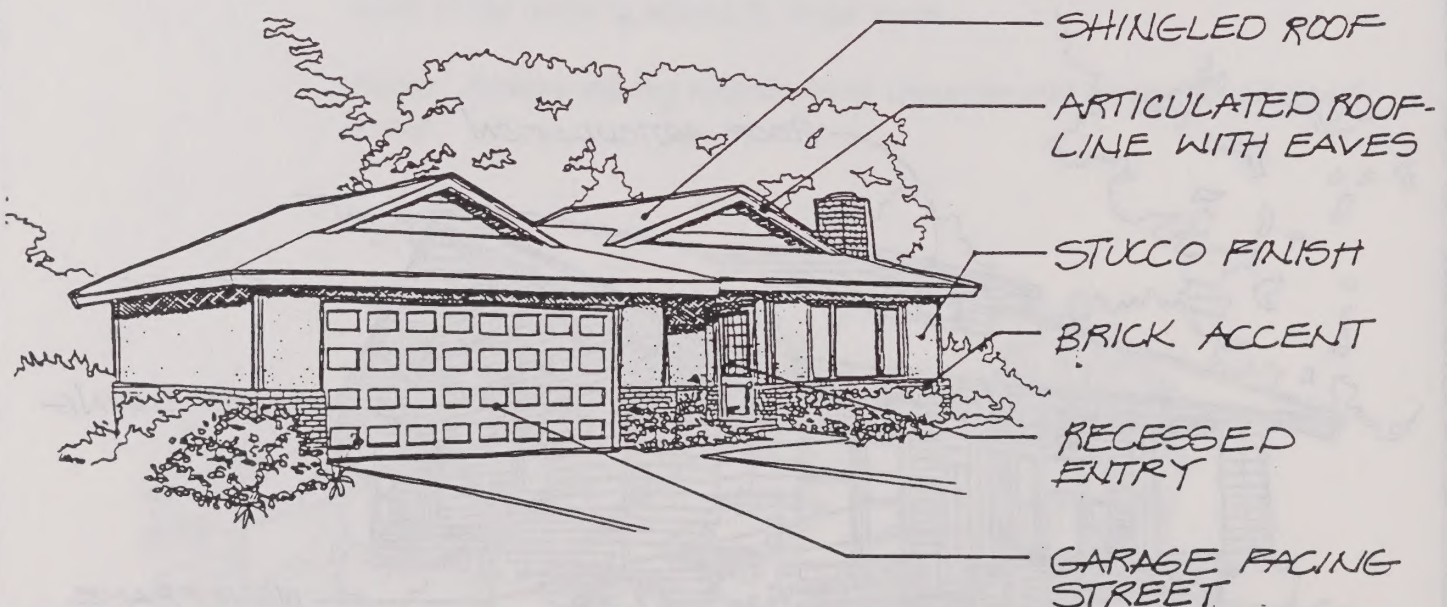


Design Elements of a Residence within Area A

6. Roofs: Simplify roofs with low pitches and overhangs. Roof materials should consist of simple asphalt shingles or Spanish tiles. Flat roofs hidden by extended facades are also appropriate.
7. Garages: Early American homes lack garage-dominated streetscapes (Area A). Encourage alley access where possible. Elsewhere, minimize visual impact of garage doors and driveways by placing garages to the rear of the residence and minimizing driveway width. In Residential Area A existing garage doors face to street, where possible the garage doors can be turned perpendicular to the street to minimize the visual impact of the door.

Intent: Preserve traditional neighborhood character by minimizing the automobile's visual impact.

8. Color: Refer to page 25.



Design Elements of a Residence within Area B

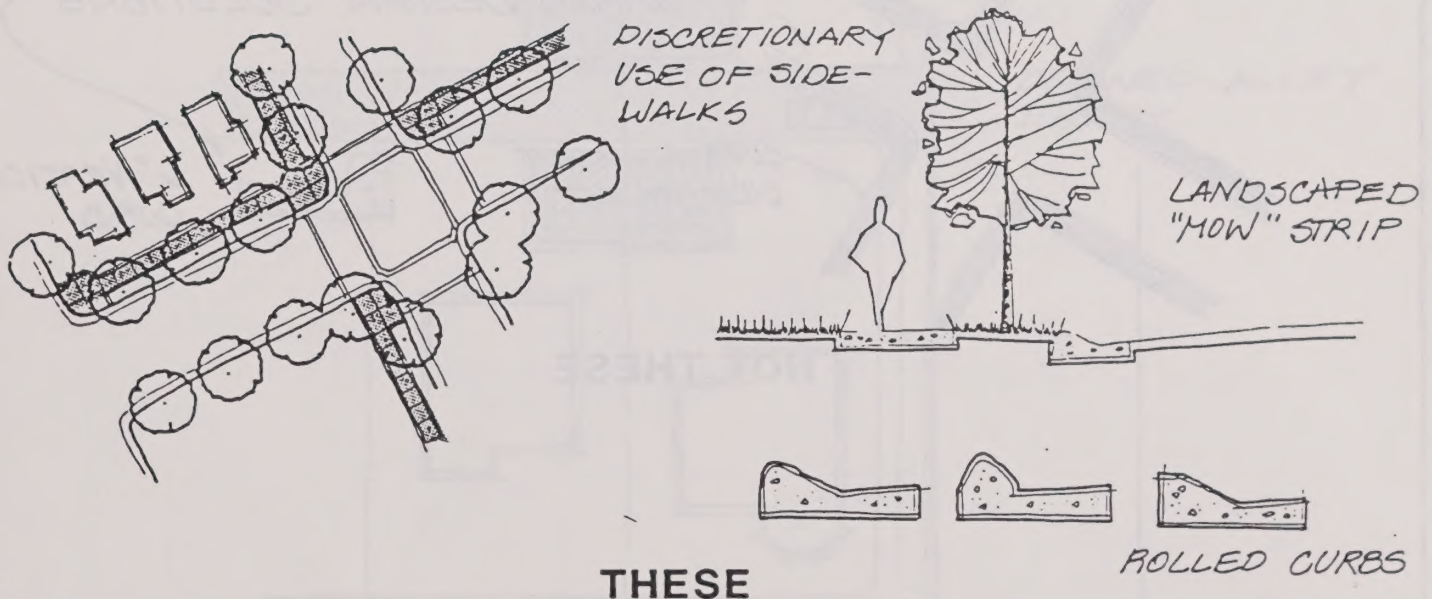
D. Streets and Alleys

Existing streets and alleys in the residential zone lack differentiation, adequate paving (drainage), lighting, and marking (and in many areas sidewalks). Pursue public works projects with redevelopment funding and Community Development Block Grant (CDBG) funds to provide improved streets, curbs, gutters, and sidewalks.

Intent: Provide streets and alleys which are safe and functional while maintaining the neighborhood's rural character.

1. Residential Streets: Resurface and improve signage and lighting on existing streets.

Intent: Provide safe and legible roadways for drivers and pedestrians.

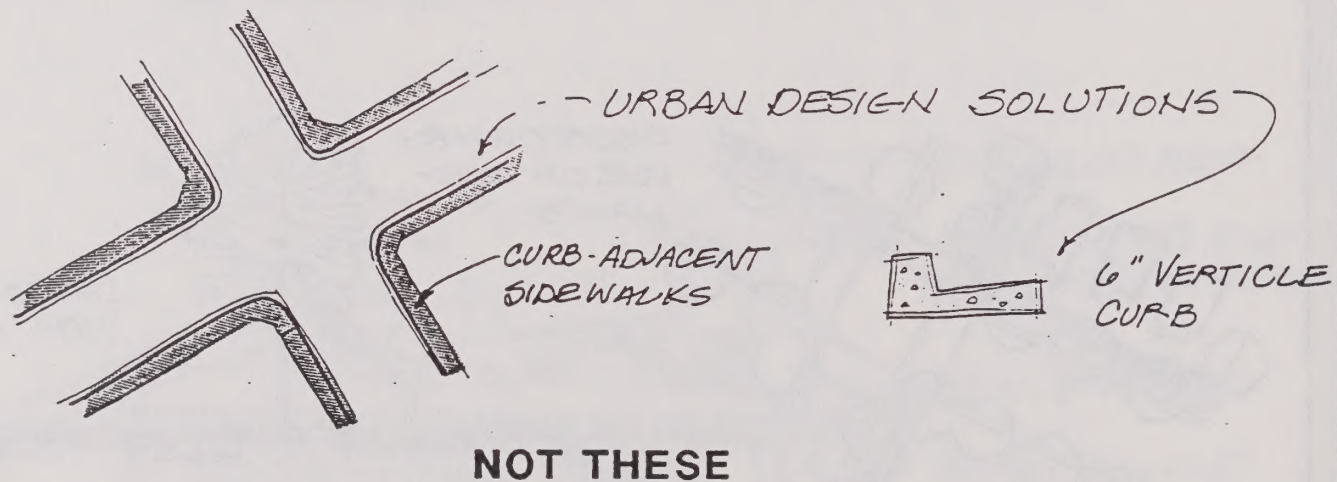


2. Sidewalks: Provide curbs, gutters, and sidewalks in a manner which maintains a "small town" character while providing for pedestrian paths, road edges, and drainage.

- Encourage the use of rolled curbs, straight, narrow sidewalks, and planted parkways.

Intent: Preserve the neighborhood's character and prevent the larger scale urban look occurring in newer housing developments.

Refer to page 14.



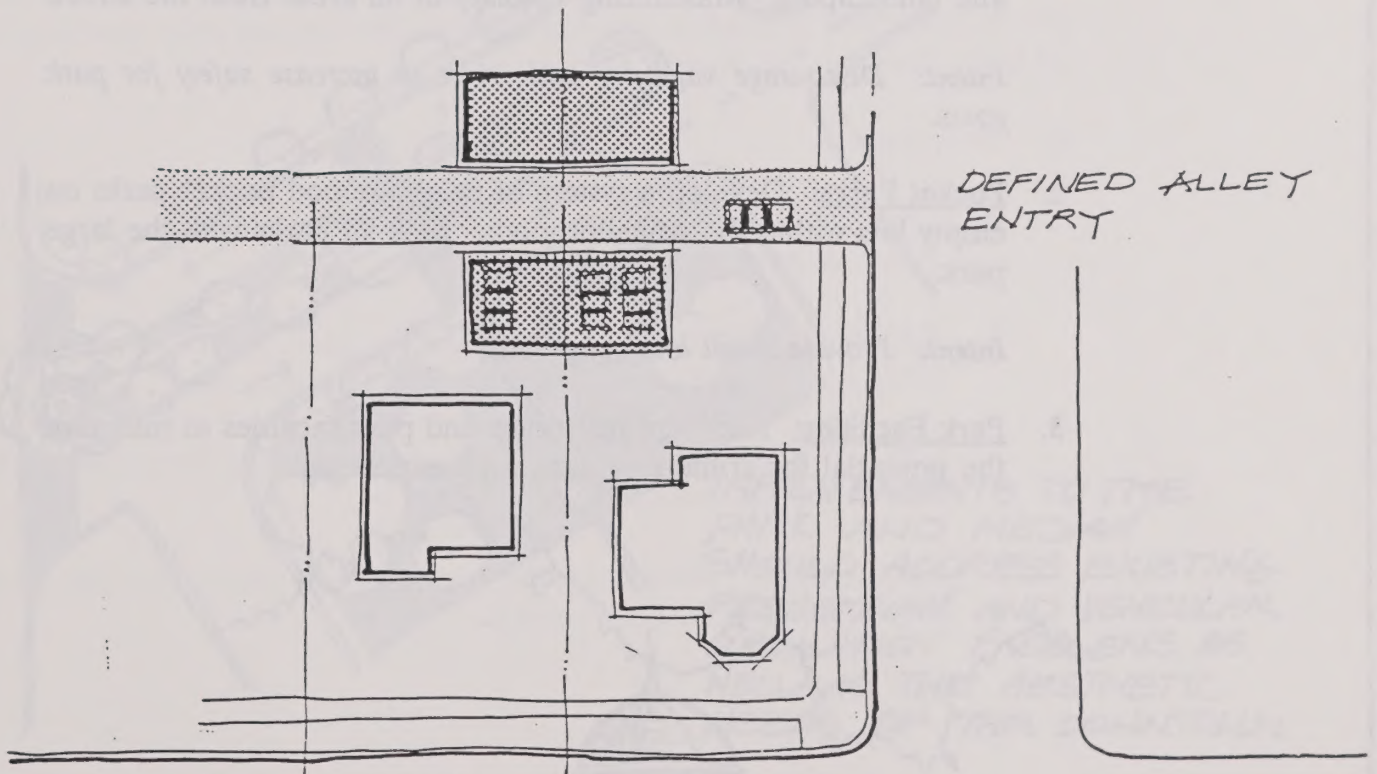
3. Alleys: Alleys are a desirable feature. Use them to their full potential. Place garages, carports, utilities, and solid waste storage areas on the alleys.

- Differentiate alleys from streets to discourage through traffic and promote a more logical neighborhood circulation pattern.

Intent: Minimize visual impact of garages, cars, utilities, and garbage cans on streets.

4. Parking: Limit parking of vehicles to driveways, garages, and street frontages. Avoid parking in front yard areas.

Intent: Discourage clutter of automobiles throughout neighborhoods.



IV. PARKS

Based upon the community survey results, Salida's major downtown park has become an unfriendly, unsafe place not suitable for families and children. Park improvements can create an improved environment that people will enjoy. A park facility redesign effort should be pursued. Expansion of the park into a system of parks will further serve to enhance the safety and desirability of the park while providing important linkages throughout the community.

Goal: Promote overall community vitality and participation which enhance the "small town" character and offer safe recreation for all Salida residents and children.

A. Site Planning Guidelines

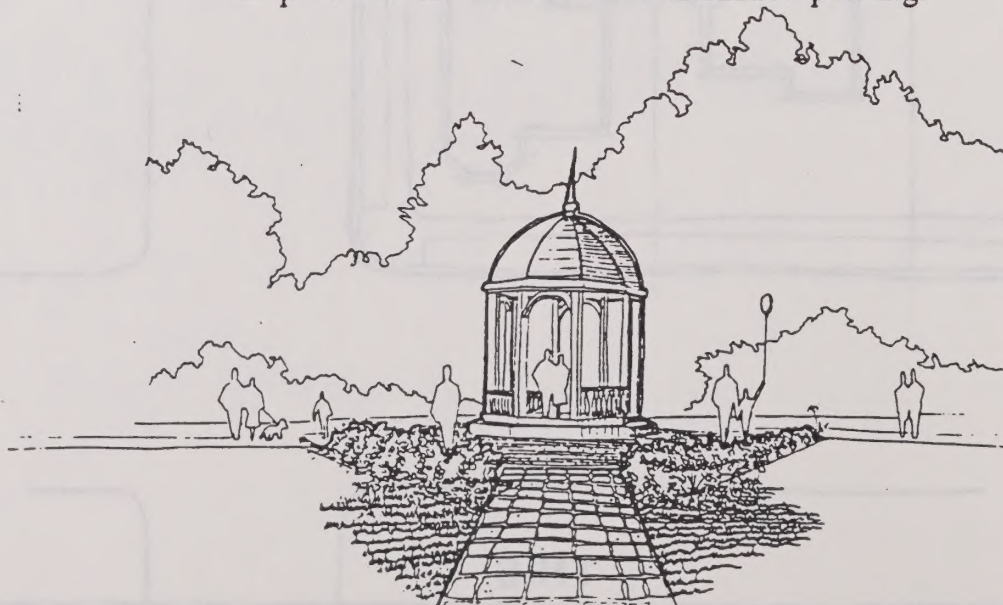
1. Visibility: Eliminate areas of low visibility behind buildings, barriers, and landscaping. Maximizing visibility of all areas from the street.

Intent: Discourage vagrancy and crime to increase safety for park goers.

2. Pocket Parks: Develop a system of neighborhood pocket parks on empty lots within the neighborhoods. Link all parks with the large park.

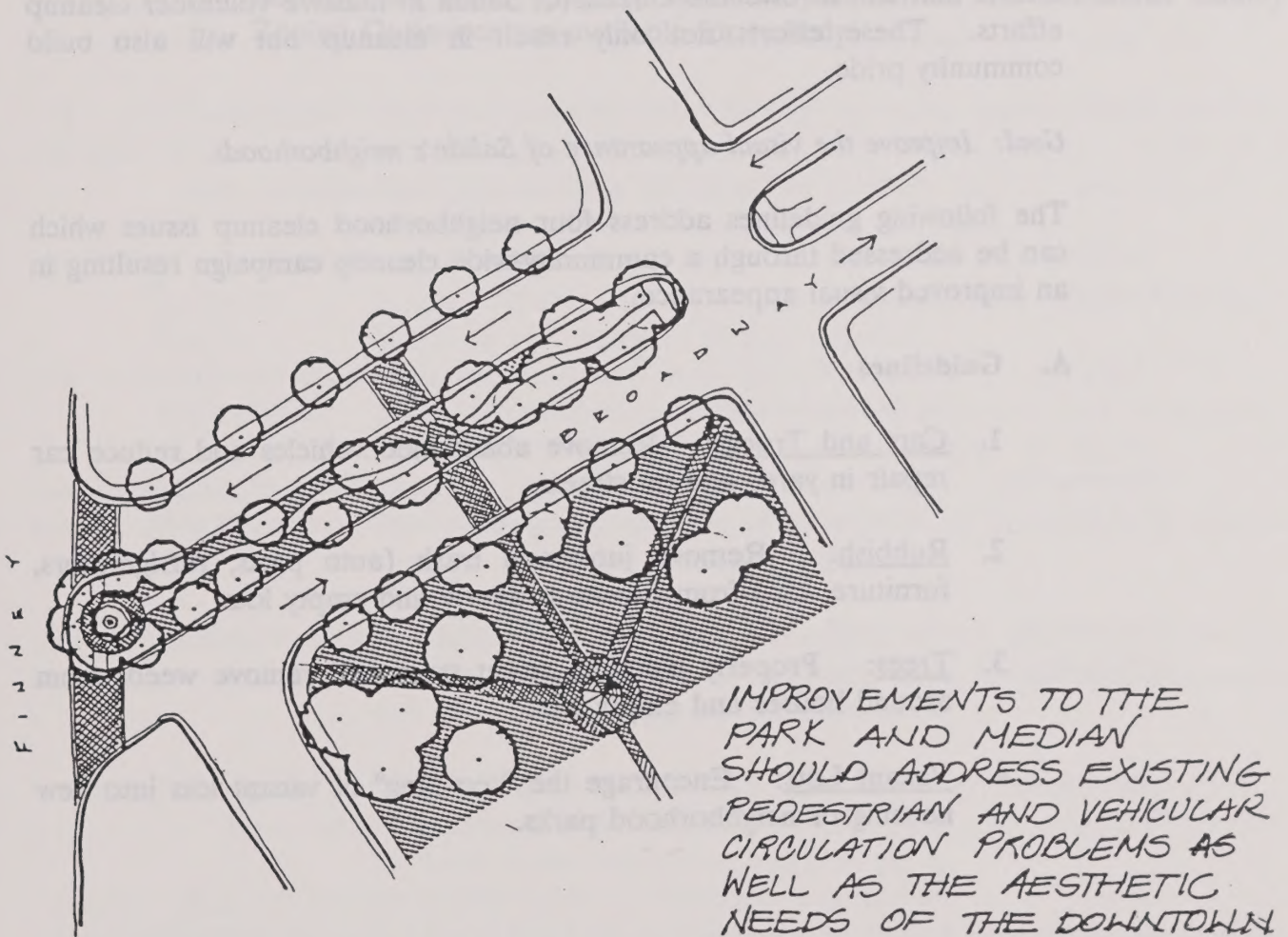
Intent: Provide small local play lots.

3. Park Facilities: Redesign restrooms and park facilities to minimize the potential for crime and to maximize policing.



4. Parks as Nodes: The park should serve as a central node with good linkages to neighborhoods and downtown. Streetscape and street improvements in both the commercial and residential areas should reinforce the concept of linkages and paths to the park.

Intent: Make the park easily accessible by foot and an important central open space element of the downtown.



V. GENERAL NEIGHBORHOOD CLEANUP

The old neighborhoods of Salida contain many instances of abandoned cars, junk in yards, weeds, overgrown trees, and trash in empty lots creating a rundown appearance, as well as potentially dangerous conditions. The community should be encouraged to get involved in community cleanup through a "Community Beautification Program". This type of program typically involves a lead committee (perhaps the MAC) which organizes efforts that will involve the citizens of Salida in massive volunteer cleanup efforts. These efforts not only result in cleanup but will also build community pride.

Goal: Improve the visual appearance of Salida's neighborhoods.

The following guidelines address four neighborhood cleanup issues which can be addressed through a community-wide cleanup campaign resulting in an improved visual appearance.

A. Guidelines

1. Cars and Trucks: Remove abandoned vehicles and reduce car repair in yards and on streets.
2. Rubbish: Remove junk and trash (auto parts, refrigerators, furniture, etc.) from private property and empty lots.
3. Trees: Properly maintain street trees and remove weeds from around houses and empty lots.
4. Vacant Lots: Encourage the "recycling" of vacant lots into new housing or neighborhood parks.

VI. IMPLEMENTATION AND INTERPRETATION OF GUIDELINES

Those Design Guidelines are intended to be directive, not mandatory and should be applied within the context of the County of Stanislaus General Plan and Zoning. Graphics are intended to convey ideas and concepts, not to be taken literally. It shall be the responsibility and authority of the Stanislaus County Planning Director/Redevelopment Agency staff or his duly appointed representative to interpret and apply these guidelines. Where dispute may arise, appeal procedures pursuant to the Stanislaus County Zoning Ordinance are available for remedy.

GLOSSARY

Articulation	Horizontal and vertical variations in the surface plane of a structure. For Example: A cube has no articulation, by adding and subtracting vertical and horizontal elements to the cube (articulation), a more interesting shape is created (see illustration on page 34).
Awnings	Cloth-covered door and window overhangs which provide shade and shelter. Usually colorful, can be embellished with signs and have a variety of shapes.
Buffer Zone	A strip of land which protects one land use from another. For Example: Landscaped buffers with earth berms and low walls are excellent at "buffering" parking lots from adjacent uses.
Building Facades	The side of the building facing the street. Typically, the front of the building.
Canopies	Structural projections from buildings designed to provide shelter and define pedestrian space on the sidewalk.
Community Fringes	The areas of new growth directly adjacent to the existing developed Community of Salida, particularly those areas outside of the redevelopment plan boundaries.
Community Revitalization	The goal of bringing new development, while renovating, restoring, and renewing existing development in Salida in order to improve economic function and quality of life.
Continuous Edge	Alignment of buildings, low walls, and fences along a street or sidewalk which creates an uninterrupted linear edge.
Curb Adjacent	Refers to a sidewalk's position directly against the curb. Often typical of downtown areas but not preferable in residential areas.
Districts	An area of homogeneous characteristics (e.g., structures, uses, etc.) that distinguishes it from another area. For Example: Salida's downtown "district" is different than the residential "district".

GLOSSARY (continued)

False Front	An architectural treatment of the front of a building that masks the structural form and material of the building.
Graphic/Icon Signs	Signs which use symbols, rather than words to advertise a message. For Example: A barber poll is an icon sign, another example could be an ice cream cone graphic to advertise an ice cream store. Icon signs are especially well suited as pedestrian signs (page 24).
Human Scale	The perceived size of a building or space defined in terms of its relationship to the size of a person. A building or space of a human scale will be proportioned in such a way that it is comfortable, desirable, and pleasing to people.
Recessed Entries	A space off the sidewalk that allows for opening doors and window shopping and increases facade variation.
Right-of-Way (R.O.W.)	The width of land set aside for streets, sidewalks, and landscaping. Generally, development does not occur within the ROW.
Rhythm	The pattern of form created by a series of buildings with related character, width, and scale.
Scale	The size of a structure as perceived by the eye. The same size building can reduce its scale by adding detail, articulation, overhangs, and landscaping (see articulation).
Setback	The distance between a structure and the lot lines (property lines), sometimes referred to as "yards". Typically setbacks are specified for front yards, rear yards, and side yards.
Shingled Canopies	Shed roof-like canopies projecting from buildings with wood shingles.

GLOSSARY (Continued)

Streetscape Elements of a street that improve the pedestrian experience and vehicular circulation. For Example: Street trees, curbs and sidewalks, clear signage, street lighting, street furniture, and crosswalks (see pedestrian environment).

Vertical Zoning which allows for different uses at different elevations in the same building. For Example: Commercial uses limited to the first floor and residential uses limited to the second and third floors would constitute vertical zoning (see mixed uses).

SALIDA DESIGN GUIDELINES

Reference

APPENDIX

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
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HAVE A SAY IN SALIDA'S FUTURE

Salida has been chosen to receive funds which will be used to help improve the quality of your community. We are interested in knowing what you think about your community and what you would like to see happen in the future. Please take a few minutes to share your thoughts with us by completing this survey. Your participation is essential!!

1. PLEASE RATE THE IMPORTANCE OF EACH OF THE FOLLOWING: (Circle one)

		Very Important	Moderately Important	Not Important	No Opinion
A.	Street and curb improvements	1	2	3	4
B.	Uniform architectural style				
	1. In residential areas	1	2	3	4
	2. In commercial areas	1	2	3	4
C.	Public restrooms	1	2	3	4
D.	"Small town" character	1	2	3	4
E.	Landscaping	1	2	3	4
F.	Bicycle paths	1	2	3	4
G.	Economic/commercial growth	1	2	3	4
H.	Parking	1	2	3	4
I.	Street lighting	1	2	3	4
J.	Pedestrian circulation	1	2	3	4
K.	Improved store fronts	1	2	3	4
L.	Parks	1	2	3	4
M.	Downtown	1	2	3	4
N.	Street furniture	1	2	3	4
O.	Public utility improvements	1	2	3	4
P.	Salida's town history	1	2	3	4
Q.	Other _____				

2. OF THE ABOVE ITEMS WHICH FIVE DO YOU THINK ARE THE MOST IMPORTANT? (Identify by letter)

1. ____ 2. ____ 3. ____ 4. ____ 5. ____

3. PLEASE LIST THREE THINGS ABOUT YOUR COMMUNITY THAT YOU THINK NEED IMPROVEMENT.

1. _____
 2. _____
 3. _____

4. DO YOU LIKE THE VISUAL APPEARANCE OF: (Circle one)

A.	Older residential neighborhoods	Yes	No	No opinion
B.	Newer residential neighborhoods	Yes	No	No opinion
C.	Older business areas	Yes	No	No opinion
D.	Newer business areas	Yes	No	No opinion

5. PLEASE PROVIDE ANY OTHER COMMENTS YOU MAY HAVE THAT WILL HELP US UNDERSTAND YOUR DESIRES FOR THE FUTURE OF SALIDA.

6. ARE YOU A RESIDENT OF SALIDA? (Circle) Yes No

Upon completion of this survey please deposit in one of the marked boxes or return no later than August 29, 1990 to:
 Stanislaus County
 Municipal Advisory Council
 P.O. Box 374
 Salida, CA 95368

Summary of Responses to: HAVE A SAY IN SALIDA'S FUTURE

Salida has been chosen to receive funds which will be used to help improve the quality of your community. We are interested in knowing what you think about your community and what you would like to see happen in the future. Please take a few minutes to share your thoughts with us by completing this survey. Your participation is essential!!!

1. PLEASE RATE THE IMPORTANCE OF EACH OF THE FOLLOWING: (Circle one)

Categories with an "*" are identified as "most important" in question number 2, bold percentages indicate greatest response (mode).

		Very Important	Moderately Important	Not Important	No Opinion
*A.	Street and curb improvements	72.2 %	24.1 %	2.8 %	1.0 %
B.	Uniform architectural style				
	1. In residential areas	21.2 %	28.8 %	40.4 %	9.6 %
	2. In commercial areas	29.8 %	31.9 %	30.9 %	7.4 %
C.	Public restrooms	30.7 %	34.7 %	30.7 %	4.0 %
*D.	"Small town" character	58.7 %	25.0 %	11.5 %	4.8 %
E.	Landscaping	57.0 %	30.8 %	10.3 %	1.9 %
F.	Bicycle paths	42.7 %	34.0 %	20.4 %	2.9 %
G.	Economic/commercial growth	43.3 %	34.6 %	17.3 %	4.8 %
H.	Parking	46.2 %	43.3 %	9.6 %	1.0 %
*I.	Street lighting	68.9 %	26.4 %	3.8 %	0.9 %
J.	Pedestrian circulation	47.1 %	32.4 %	9.8 %	10.8 %
K.	Improved store fronts	52.8 %	35.8 %	9.4 %	1.9 %
*L.	Parks	66.3 %	26.0 %	6.7 %	1.0 %
*M.	Downtown	65.4 %	19.6 %	10.3 %	4.7 %
N.	Street furniture	20.8 %	32.1 %	38.7 %	8.5 %
O.	Public utility improvements	37.7 %	42.5 %	8.5 %	11.3 %
P.	Salida's town history	43.7 %	32.0 %	15.5 %	8.7 %
Q.	Other _____				

2. OF THE ABOVE ITEMS WHICH FIVE DO YOU THINK ARE THE MOST IMPORTANT? (Identify by letter)

1. A 14.4% 2. I 11.4% 3. L 8.7% 4. M 8.7% 5. D 7.2%

3. PLEASE LIST THREE THINGS ABOUT YOUR COMMUNITY THAT YOU THINK NEED IMPROVEMENT.

1. Police Protection (own police department, faster response times)
2. Sidewalks / Street Improvements (Broadway & major streets, bike paths, Curbs & gutters)
3. General Clean-up (housing, streets, junk, weeds, removal of abandoned cars)

Also mentioned often: Park safety, landscaping, street lighting

4. DO YOU LIKE THE VISUAL APPEARANCE OF: (Circle one)

	Yes	No	No opinion
A. Older residential neighborhoods	25.5 %	63.3 %	11.2 %
B. Newer residential neighborhoods	84.6 %	7.8 %	7.8 %
C. Older business areas	31.7 %	60.4 %	7.9 %
D. Newer business areas	81.0 %	7.0 %	12.0 %

5. PLEASE PROVIDE ANY OTHER COMMENTS YOU MAY HAVE THAT WILL HELP US UNDERSTAND YOUR DESIRES FOR THE FUTURE OF SALIDA.

1. General Clean-up
2. Parks not suitable for families
3. Police Protection

Also mentioned often: Growth Management, landscaping, sidewalk & street improvements, drunkenness/loitering

6. ARE YOU A RESIDENT OF SALIDA? (Circle) Yes 82.4% No 17.6%

Upon completion of this survey please deposit in one of the marked boxes or return no later than August 29, 1990 to:

Stanislaus County
Municipal Advisory Council
P.O. Box 374
Salida, CA 95368

If you have any questions or would like additional information please contact: Gary Dew (209)545-0205

SOURCES

Claire Associates, Inc. 1990, Preliminary Redevelopment Plan for Stanislaus County Redevelopment Project No. 1.

Claire Associates, Inc. 1990, Draft Redevelopment and Housing Needs Assessment and Community Redevelopment Plan for Stanislaus County and the Salida Community.

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salida.dg

Chapter II

Circulation

PURPOSE STATEMENT

The Circulation Element of the County General Plan depicts corridors for public mobility and access which are planned to meet the needs of the existing and anticipated population of Stanislaus County. The adoption of this Circulation Element by the Board of Supervisors of Stanislaus County complies with California Government Code (Section 65302 (6)) which requires each county and city to prepare, as part of their general plan, a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.

The Stanislaus County Circulation Element serves to: (1) provide a system of streets and roads throughout the County which reflect land use needs; and (2) support a broad range of transportation modes. Development of these facilities is based on the needs generated by future land use and represents the anticipated needs of each area when fully developed to the uses and densities proposed by the General Plan. Increased demand for circulation facilities is based on the need of an increased number of people to move about and the increased need to move goods from place to place.

Since 1970, the County's population has been growing 12 to 18% every five years. Although some of that growth has been in unincorporated towns, most of it is in the incorporated cities of Stanislaus County. Consequently, the County must plan for new urban roads to be built as part of development proposals and expansion of existing roads to connect major traffic generators (i.e. incorporated cities).

Goods movement will also increase with an expanded population. The large urbanized areas require tons of goods daily to maintain their economic activities. Transport of agricultural commodities has long been an important function in the Stanislaus County area. Stanislaus County is an important food processing region for the State and nation. Poultry, dairy and vegetable products are processed and distributed throughout the world from here every day. Goods movement is the result of production activities within and outside of the region and movement takes place within a complex system of routes, modes, terminals and warehouse facilities.

Stanislaus County is principally an agricultural region which produces and specializes in a number of products. Nearly 75% of the County's land is devoted to agricultural production, compared to 35% in the State as a whole. However, in the case of Stanislaus County, when raw materials are bulky, perishable and of relatively low value, it is natural that processing will occur nearest to the place where the raw material is produced, not only to reduce the bulk, but to raise the value in order to be able to sustain transportation costs. This highlights the fact that with agricultural processing occurring in most cities and towns of Stanislaus County, transportation and circulation are key factors in the County's economy.

Agriculture and manufacturing depend on an efficient, rapid, and economical transportation system to move supplies and final products. Continued allocation, improvement, and maintenance programs will ensure a circulation system vital to the County's economy.

SCOPE OF ELEMENT

History

The circulation system, which provides for the movement of people and goods, to, from, and within Stanislaus County is a part of the framework upon which the physical, economic, and social character of the County is built. It is important that major circulation routes and facilities be planned well in advance of community development, so that they can unite the various activities proposed by the General Plan.

During earlier days, pioneer travelers to or from Stanislaus County had a choice of three modes of transportation: horseback, stage or wagon, and steamboat - none of which offered any great degree of speed, comfort, or convenience. The importance of transportation is indicated by the fact that it was one of the first problems claiming the attention of the newly organized California State Legislature. In 1850 that body passed a law, commonly referred to as the "Roads Act". This act authorized each County to designate which roads were public highways and to levy a poll tax for road purposes. Hence, the development of County-maintained roads.

The basic pattern of the road grid is a system of east-west and north-south section line roads in the valley portion of the County. In the foothills of the eastern part of the County and the mountains to the west, very few roads exist. In the valley portion of the County, the grid system is interrupted by the diagonal pattern generated by Highway 99, Southern Pacific and Santa Fe Railroads. West of the San Joaquin River, the grid pattern of roads is parallel to the river. These major arterials form the foundation for the development of the urban communities in the County.

The road pattern seems to be very well adapted to the land use pattern, partially because one assisted in generating the other. In the valley portion of the County, adequate access by hard surface roads is provided to nearly every parcel in the agricultural area. Few private roads are necessary to complete the access from public roads to all properties in the County. However, proceeding into the foothills and mountain area, progressively fewer roads are utilized. The density of roads decreases, but then, the size of parcels greatly increases also.

Stanislaus County presently maintains approximately 1,600 miles of roadway. Development of these facilities is based on the needs generated by present and future land use. Rezoning of a major portion of the County from an A-2-10 (Exclusive Agriculture) to an A-2-40 (Exclusive Agriculture) classification in 1983 has relieved the potential demand for an enlarged circulation system. Some roads, for example, projected in prior plans to be major roads will simply remain at their present level of development. The proposed circulation element presents a realistic representation of what the future transportation network will be.

Relationship to Other Elements

Each element of the General Plan will be identified and its relationship to the circulation element will be discussed so that the impact of the circulation element in relation to planning practices might be more clearly defined.

Land Use. Land Use planning recognizes that goods and people must be able to travel between two points. Adequate planning of circulation systems is necessary to accomplish this basic concept. The case of Concerned Citizens of Calaveras County versus Calaveras County Board of Supervisors has proven that a circulation system must be consistent with the growth projections set forth in the land use element.

Within urban areas, a hierarchical network of roads, public transit facilities and alternative modes of travel must continually be evaluated to ensure that the adequate provision of these facilities will exist to handle increased demand. Outside of urban areas, these same facilities must be located in such a manner as to serve the outlying residents and provide links between major urban areas.

Circulation can be a factor in controlling urban growth. Poor or unsafe vehicle access can limit the proper site usage while an over-abundance of roads may cause confusion and wasted land area. Careful planning is needed so that the circulation system complements the various land uses through the proper provision and control of vehicular access.

Housing. Although housing is only one portion of land use planning, the detailing of circulation to and from each household can enhance the residential desirability of any area. Designated street widths with full improvements insure the resident that drainage, parking, pedestrian and bicycle travel and adequate access to property, will be consistent with street classifications and available throughout the urban area. Availability of public transportation throughout the urban area is also essential to provide everyone the opportunity to choose housing within their neighborhood of preference.

Conservation/Open Space. For the continued conservation of our natural resources and agricultural lands, appropriate circulation provides another important function. Rural circulation is necessary for the transporting of food and fiber for processing and marketing. Rural circulation should be recognized for its primary use and not as a means to promote parcelization and rural urbanization that creates conflicts with the continuation of good agricultural management.

Areas of natural resources can contain many points of scenic beauty and recreational areas. Circulation access to these areas can provide the individual with the opportunity to experience relaxation and enjoyment, yet through regulated vehicle access these areas can be conserved for future generations.

Many State and Federal regulations are working to reduce the amount of pollutants emanating from vehicles. Efficient public transit and effective land use planning, that keeps the residence-to-work trip to a minimum, can also help to maintain an acceptable standard of air quality. The increased use of public transit and bicycles for home-to-work trips has had some positive effect in preserving air quality in many areas.

Construction of circulation routes or facilities within riparian areas, plant and animal habitats, and other areas of natural wildlife refuge should be avoided. Regulated access to such areas for recreation, scenic or wildlife study should also be well planned so as to minimize the disturbance of critical areas by noise, pollutant, or construction.

Programs in urban areas to maintain circulation systems are important to the overall beauty and economy of the community. Resurfacing, replacing of broken or damaged elements, screen and landscape planting, sweeping and litter pick up are all contributing factors to the upgrading of the environment.

Safety. A circulation element policy is to promote safety of the individual and minimize traffic congestion. The circulation system also provides a means of safety for deliverance of services. Police, fire, ambulance, and other safety services are provided to most urban dwellers through a circulation system. Making sure that these services can reach each individual with a minimum of delay is an important safety factor in the design of the circulation element. In cooperation with the Office of Emergency Services existing and proposed evacuation routes from the effects of flooding, seismic activity or other disasters have been considered in the development of this Circulation Element.

Noise. Users of a circulation system are major contributors of noise. Research and monitoring is being done to reduce noise, but airports, railroads and roadways continue to be sites where high levels of noise emanate and must be treated as conflicts with certain land use designations. Noise impacts can be mitigated through the proper integration of circulation and land uses and by the construction of barriers to contain and direct noise away from conflict areas.

INFRASTRUCTURE

Introduction

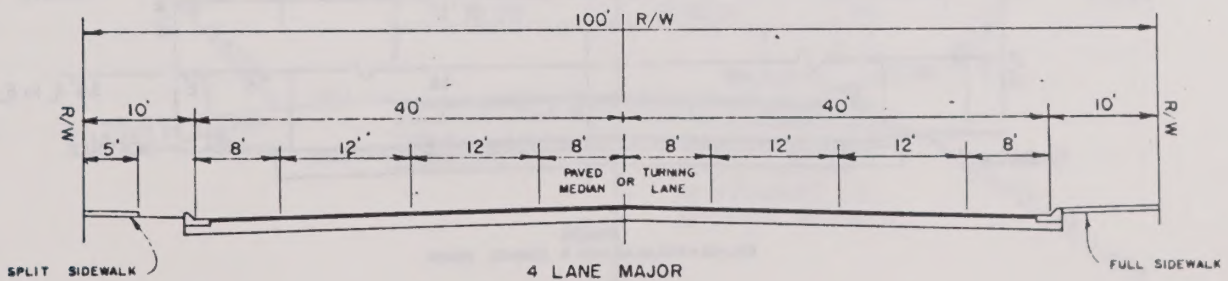
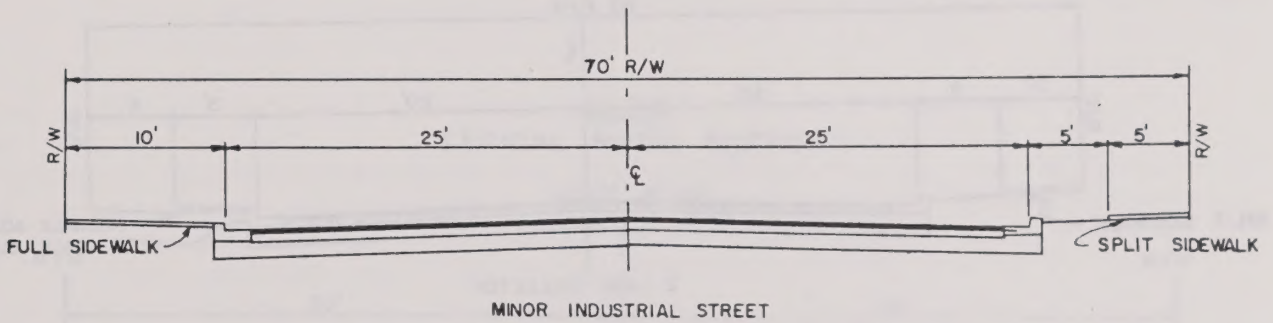
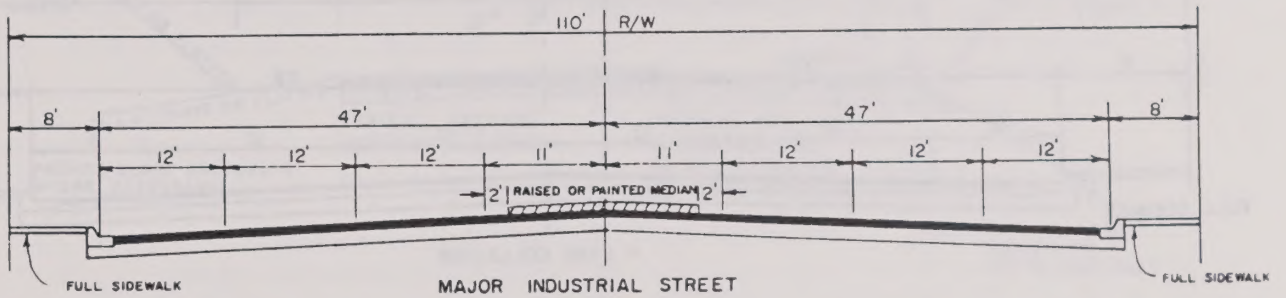
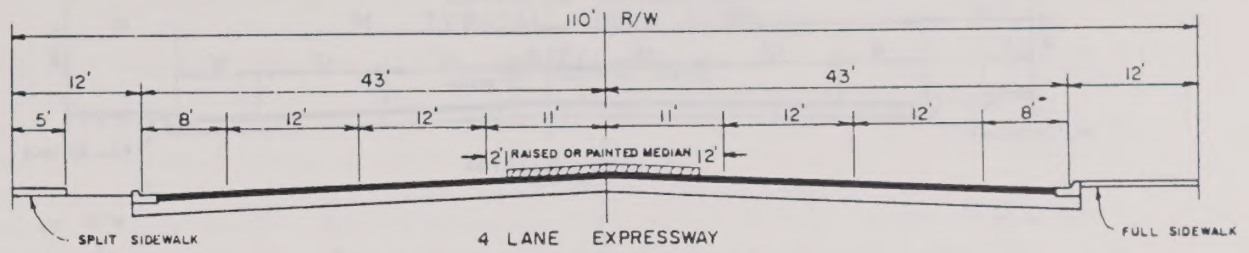
Stanislaus County has a well planned system of streets and roads. This network is designed to provide for the safe and efficient movement of people within, to, and from the region. Principles used to develop this element are those which constitute accepted contemporary planning procedure. They include use of land use designations, traffic counts, origin and destination surveys, and estimates of future population and the effects of future traffic generators. Corridors to provide appropriate traffic carrying capacity then are proposed along routes which will serve these projected traffic volumes. These routes have been adjusted to conform with significant natural and cultural features which necessarily influence their location. See Circulation Element Diagram.

In addition to providing access for people to move about, streets and roads provide corridors for goods movement. Trucks are the major movers of freight in the nation in terms of overall expenditures. Trucks are most important in movement of goods for short or medium haul trips. They have a moderate to high energy requirement in comparison to other modes. This disadvantage is offset by the flexibility they offer in terms of destinations, schedules, and routings. Because of this flexibility, many individuals carry on one-man operations as viable, private carriers. Commodity movement by this mode, however, is a major cause of the deterioration of street and highway surfaces necessitating a high level of maintenance of the street and highway network.

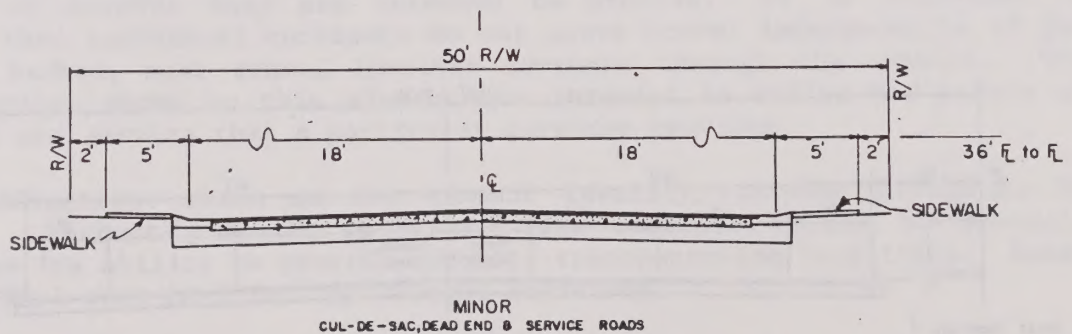
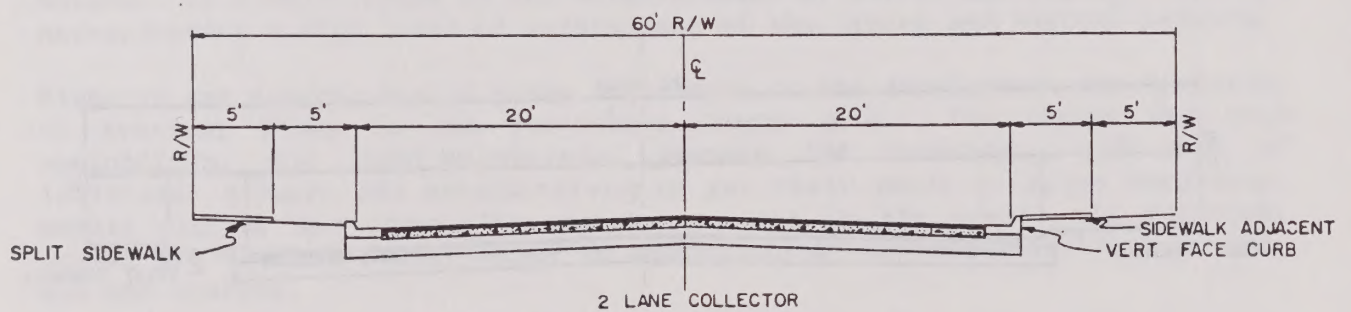
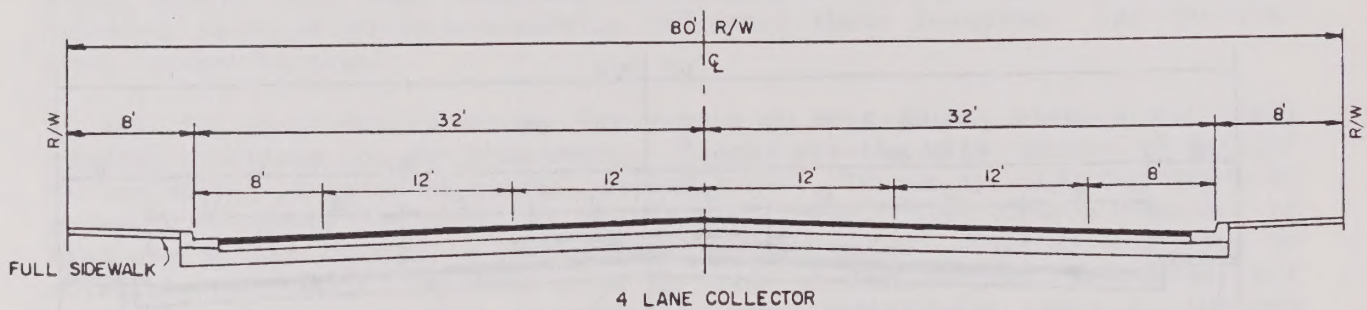
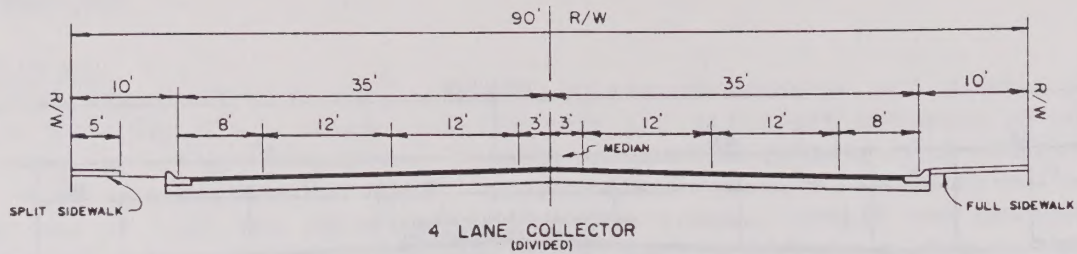
Highways and streets are of prime importance to the development and operation of trucking firms in the Stanislaus County area. The region has both agricultural and light industrial demands for trucking. The need of individual growers and manufacturers to get their goods to major terminals, market places, and processing centers are met by the truck. In addition, trucks are used as feeder lines to distribute goods from major rail, water, and air centers.

The corridors shown on this element are grouped into classes according to the character of service they are intended to provide. It is important to recognize that individual corridors do not serve travel independently of the network. Rather, most travel involves movement through the network. The classifications shown on this element are intended to define the nature of the travel and service that a particular corridor provides.

The classifications shown on the element identify corridor widths to be protected. Without planning protection the community would be severely hampered in its ability to provide adequate transportation facilities. Refer to Plates 2A-1 thru 2A-3 for improvement standards.



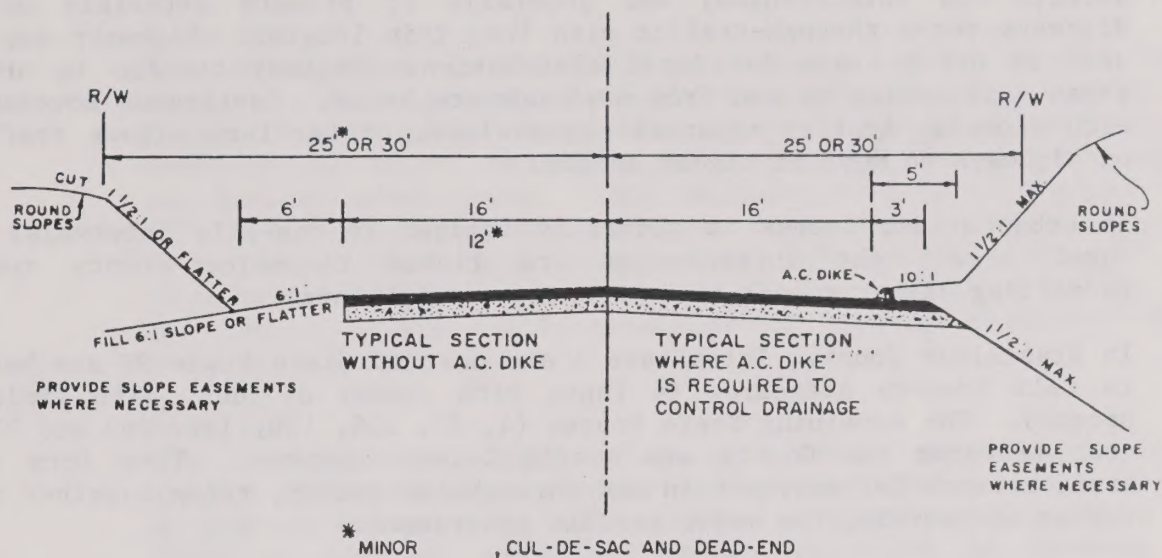
TYPICAL STREET SECTIONS



TYPICAL STREET SECTIONS

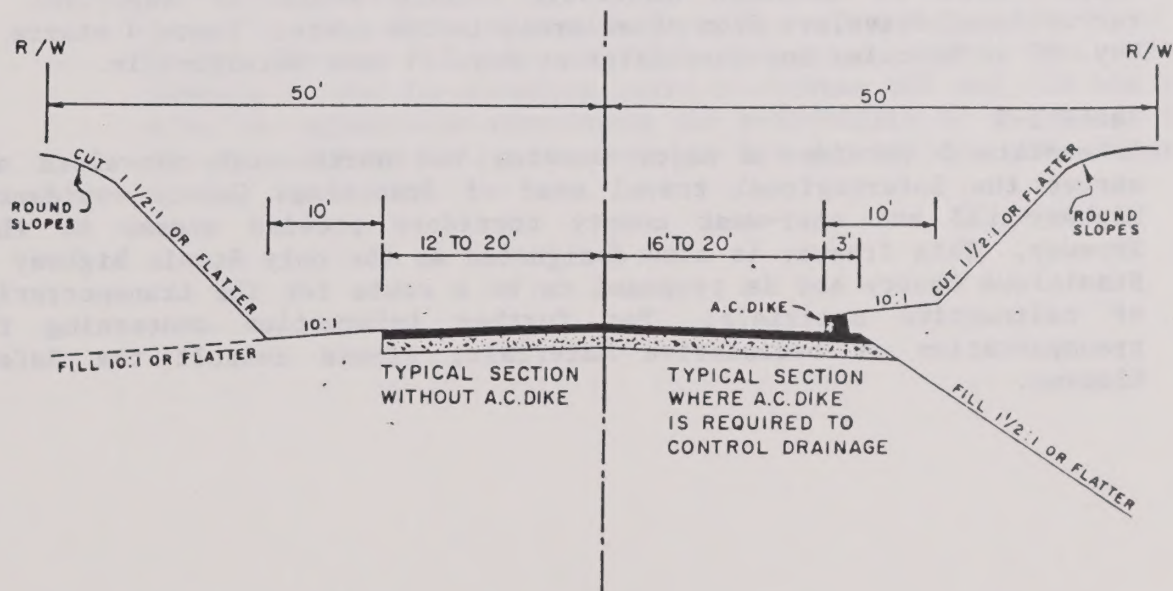
LOCAL & COLLECTOR TYPICAL RURAL SECTION

50' & 60' R/W



MAJOR TYPICAL RURAL SECTION

100' R/W



Streets and Roads

Classifications.

Highway/Freeway. The function of highways is to provide for mobility. They have no direct land service function. Access is restricted to streets via interchanges, and generally to primary arterials only. Highways serve through-traffic with long trip lengths. Highways may be used in urban areas for local circulation. Highway traffic in urban areas peak during to and from work commute hours. Continuous movement, with opposing traffic separated by medians, or barriers allows traffic on highways to move at higher speeds.

In urban areas, access is generally limited to one-mile intervals; in rural areas most interchanges are linked to major county roads permitting higher speeds to be maintained with safety.

In Stanislaus County, Interstate 5 and most of State Route 99 are built to full freeway standards (4 lanes with center divider, with limited access). The remaining State Routes (4, 33, 108, 120, 132, 165 and 219) that traverse the County are mostly 2-lane highways. They form the basic network for movement in and through the County, tying together the cities and serving the major traffic generators.

Following are brief summaries of these State highways.

Route 4

This State highway serves as a transportation link for travelers with origins and destinations in other counties. This route crosses the northern portion of the County in an east-west direction approximately 6 miles north of Woodward Reservoir. This route is important to recreational travelers from other areas in the State. Route 4 starts at Hwy. 80 in Hercules and terminates at Hwy. 89 near Markleeville.

Route I-5

Interstate 5 provides a major service for north-south travelers and serves the interregional travel need of Stanislaus County residents. Highway 132 and east-west county corridors provide access to this freeway. This freeway is also designated as the only Scenic highway in Stanislaus County and is proposed to be a route for the transportation of radioactive materials. For further information concerning the transportation of radioactive materials, please consult the Safety Element.

Route 33

This State highway serves as an important transportation link for residents in Grayson, Westley, Patterson, Crows Landing, and Newman since it passes through or near their cities. Route 33 runs generally parallel to I-5 in a north-south direction. This route originates in San Joaquin County and terminates in Ventura County.

Route 99

This state route is the major north-south artery of the State, connecting Stanislaus County with the north and south central San Joaquin Valley areas. Route 99 passes through the most populated areas of the County including the Salida, Modesto, Ceres, Keyes, and Turlock urban areas. This includes linkage with routes 108, 132, 165, 219, Briggsmore Avenue, Hatch Road, Whitmore Avenue, Keyes Road, West Main Street, and other major county roads. Efforts of the highest priority should be maintained to see that this route becomes fully developed to freeway standards within Stanislaus County.

Route 108

Route 108 carries a high volume of traffic, particularly in the Modesto urbanized area. It begins in Modesto and is known locally as McHenry Avenue. The route changes direction at Patterson Road where it proceeds easterly through Riverbank to Oakdale. In Oakdale, Route 108 merges with Route 120 to carry travelers from Stanislaus County and other areas of the State to recreational areas of the Sierra Nevada and beyond.

Route 120

Route 120 begins at I-5 in San Joaquin County. In Oakdale, Route 120 merges with Route 108. This route is an important east/west link for travelers destined for the recreation centers of the Sierra Nevada. Severe traffic congestion within the City of Oakdale at the intersecting point of Routes 108 and 120 has given rise to discussion concerning the possibility of a bypass. There are two alternative routes that are being considered (see diagram).

Route 132

State Route 132 is one of the main east-west routes of travel from I-5/580 that passes through the cities of Modesto, Waterford and LaGrange. This route is primarily a two lane road which is important to recreational travelers enroute to Modesto Reservoir, Turlock Reservoir, Lake Don Pedro and the Sierra Nevada foothills.

There has been, since 1975, 270 acres held as future right-of-way for an improved Route 132 (see diagram). This project is not listed as a long-range program in the current Stanislaus Area Transportation Plan. However, right-of-way will be retained despite uncertainties as to the eventual construction of the freeway.

Route 165

Route 165 (Lander Avenue) begins in Turlock at Highway 99, travels south through Los Banos and connects with Interstate 5. This is a two lane road primarily used as an agricultural truck route during harvest season.

Route 219

Route 219 is the shortest State route within Stanislaus County. This route, only 4.7 miles long, begins at Route 99 in Salida and ends at State Highway 108. This is an important route for motorists who want to detour from the traffic congestion in Modesto. This route not only serves through traffic, but also serves the agricultural community located in this area. Industries located in Riverbank and Oakdale use this route for movement of both raw materials and finished products.

J Routes

The "J" system is a state numbering and lettering system for interconnecting roads between two or more counties. Because roads and streets change names from one jurisdiction to the next, and in many cases change within a county, this system was established to allow routes to be shown on road maps more clearly using symbols rather than road names.

The counties immediately adjacent to Stanislaus County use the letter "J", whereas in counties further north and south, letters such as "A" and "N" are used. The individual counties install and maintain the signing for "J" routes without any direct assistance from the state.

The primary purpose of this system was for identification of county roads and gives continuity to streets and roads with changing names. The numbers used in conjunction with the established letter was set at the programs inception. While this system is not extensively used, it does provide easier transition between counties to the traveler.

Expressway. Expressways are facilities that provide for through-traffic movement with limited direct access to abutting property. Expressways serve a similar function to that of highways - the fast and safe movement of people in an urban setting.

Presently, two expressways are identified within Stanislaus County. They are Briggsmore Avenue in Modesto and Golden State Boulevard in Turlock. The newly adopted Circulation Element of Modesto illustrates a six-lane expressway loop. Some parts of this loop are outside the ultimate or general plan boundary of Modesto. The loop includes Pelandale/Claratina, Claus Road, Hatch Road, and Nebraska Avenue. This plan would include two additional bridges on the Tuolumne River.

Parts of this loop are planned as major roads on the County General Plan. A portion (Pelandale/Claratina) has an adopted plan line for a 4-lane road. The City's Circulation Element, therefore, conflicts with the Element of the County. Since the City has only a conceptual plan for the expressway loop, it is not included in this element. At such time as plans become more specific with respect to right-of-way width, acquisition, etc., the County will consider adding the loop to its Circulation Element.

Major Streets. Major streets have a primary function of moving traffic but, unlike expressways, they have a secondary function of land access. Major streets are generally two-lane streets (ultimately four-lane) constructed on rights-of-way of 80-100 feet.

Major streets collect and distribute traffic from highways to collectors and local streets. Within Stanislaus County, major roads provide necessary and convenient linkage between the cities, towns and urban areas. Future designation of major roads shall be made as deemed necessary to provide additional linkage between: (1) highways and collectors; or (2) urban areas.

Collector Streets. Collectors serve a dual function by providing both land access and mobility. Trips made on collectors are usually of medium length. Collectors serve as transition facilities, providing a medium level of traffic service between high and low-level systems. Most are 2-lane roads with 60-90 foot rights-of-way. In addition, streets not shown on the General Plan or as an adopted Official Plan Line, which will serve more than fifty urban dwelling units when the neighborhood is fully developed, shall be considered as collector streets. Since Stanislaus County requires a minimum dedication of 60 feet for right-of-way purposes in the rural areas, all street and roads in the County, unless otherwise noted, are rural collectors (see diagram). Due to topography or special circumstances, at times it is necessary to obtain additional right-of-way for slope, fill or drainage easements.

Local Streets. Local streets and roads serve as land access facilities. These facilities provide direct access to adjacent development. Trip lengths are normally short, and traffic volumes are usually small. Local streets are 2-lane streets with 60 foot rights-of-way. Streets serving fifty or less dwelling units when the neighborhood is fully developed shall be considered as local streets. Unless a Subdivision Ordinance exception is granted, no existing or proposed local street shall be altered in such a way that would create a dead-end street longer than 500 feet.

Minor Streets. Cul-de-sac and dead-end streets that are 500 feet or shorter shall be 2 lane with 50 feet of right-of-way.

Scenic Highway

Scenic highways are designated as "scenic" by virtue of the aesthetic landscapes and panoramas offered the viewer. Interstate 5 is the only adopted scenic highway in Stanislaus County. Standards for official designation of Scenic Highway rest on the analysis, planning and protection of the scenic corridor through which the highway traverses. Although the emphasis of the scenic highway is on the designation of state highway routes as scenic routes, this does not preclude local agencies from developing and adopting local scenic designations on County routes. The Scenic Highway designation is an overlay and not a separate street classification. The scenic highway designation maintains areas which are in their natural or undeveloped condition. The State of California has designated various State Highways as having natural scenic beauty worthy of preservation. This highway designation involves land use controls within the corridor to maintain the natural beauty of the area. Policies 1, 2 and 4 of Goal 1 address streets and roads.

Projections

An important consideration in planning for future street and road projects is the traffic volume measured in ADT (Average Daily Traffic). CALTRANS, through the use of a computer modeling system, has predicted the traffic volumes for Stanislaus County through the year 2,000. Highest projected ADT on significant streets and highways for the year 2,000 are identified from the 1980 modeling results. The following data is from the Stanislaus Area Transportation Plan (SATP) as amended in March, 1985.

Streets and Roads

- *Briggsmore Avenue: 54,300
- *Carpenter Road: 28,000
- *Coffee Road: 38,100
- *Crows Landing Road: 18,400
- *Geer Road: 14,200
- *Golden State Boulevard: 25,500
- *Hatch Road: 40,300
- *Lakewood/Roselle Avenue: 12,600
- *Mitchell Road/El Vista Avenue/Oakdale Road; 56,000
- *Monte Vista Avenue: 17,100
- *Ninth Street (Modesto): 26,200
- *Olive Avenue (Turlock): 14,900
- *Richland Avenue: 20,500
- *Scenic Drive: 36,000
- *Standiford Avenue/Sylvan Avenue: 36,000
- *West Main Street/East Avenue: 8,100
- *Whitmore Avenue: 14,600

State Highways

- *Route 4: 1,500
- *Route 5: 27,300
- *Route 33: 5,900
- *Route 99: 57,000
- *Route 108: 49,500
- *Route 120: 22,200
- *Route 132: 35,700
- *Route 165: 14,500
- *Route 219: 20,800

The Circulation Element diagram of the General Plan indicates that these projections have been considered when street classifications were determined. All of the above roads are designated as major roads or highways and planned for ultimate development of 4-6 lanes. The maximum capacity of a two-lane road is generally thought to be about 12,000 vehicles per day. Even though the remaining county roads designated on the Circulation Element diagram are not expected to reach this capacity by the year 2,000, growth beyond this date is anticipated. These roads are, therefore, designed as majors to enable the County to obtain needed future right-of-way. As new data becomes available, these figures will be revised and updated.

Based on the ADT projection for the year 2,000, the following major street additions are recommended for future study.

- *Carpenter Road. Expand to four lanes between Hatch Road and Blue Gum Avenue.
- *Coffee Road. Expand to four lanes between Sylvan Avenue and Claratina Avenue.
- *Crows Landing Road. Expand to four lanes between Grayson Road and Whitmore Avenue.
- *Faith Home Road. Extend and expand to four lanes between Yosemite Boulevard (State Highway 132) and Hatch Road with new bridge over the Tuolumne River using Garner Road alignment. All needed right-of-way to develop Garner Road must be obtained from the west side of the road. Major M.I.D. power lines run along the east side which would make additional right-of-way acquisition very unlikely.
- *Kiernan Avenue (Route 219). Expand to four lanes between Route 99 and McHenry Avenue.
- *Monte Vista Avenue. Expand to four lanes between Route 99 and Walnut Road.
- *Olive Avenue. Expand to four lanes between East Canal Drive and Monte Vista Avenue.
- *Richland-Conejo-Empire Avenue. Extend and expand to four lanes with new bridge over the Tuolumne River.
- *Roselle Avenue. Expand to four lanes between Floyd Avenue and Claratina Avenue.

Even though the following avenues have projections of less than 12,000 vehicles per day, improvement projects are included in the SATP due to the necessity of extension.

- *Morse Avenue. Extend from Maze Boulevard to Woodland Avenue.
- *Nebraska Avenue. Extend from Paradise Road to Maze Boulevard.

Long-range program priorities for County roads are identified in the SATP are as follows:

- *Reconstruct Carpenter Road from Crows Landing Road to Whitmore Avenue.
- *Reconstruct and widen Hatch Road from Crows Landing Road to Route 99.
- *Reconstruct and widen Oakdale Road from Sylvan Avenue to Patterson Road.
- *Replace the defective bridge on Roberts Ferry Road at the Tuolumne River.
- *Reconstruct West Main Avenue from Turlock City Limits to Patterson City Limits.
- *Reconstruct or replace an additional 26 bridges throughout the County identified as being defective. (Total estimated cost \$9,000,000).

Ordinances. The Subdivision Ordinance provides for street and highway right-of-way standards in detail. The minimum width of major, collector, minor and other specialized street types is specified. These street types are defined primarily by traffic access function.

Various lesser minimum right-of-way widths are provided under specified circumstances for dead-end, cul-de-sac, minor, part width, and short streets, as well as for frontage or service roads. The Subdivision Ordinance also prescribes street intersection angles, corner radii, maximum grades and curves, block length, maximum length for dead-end streets, and circumstances in which walkways, off street parking areas, and street continuations will be provided.

The zoning ordinance contains requirements for structure setback for all zoning districts in the County.

Dedication Requirements. When land is subdivided or otherwise divided into smaller parcels in Stanislaus County or when buildings are constructed, existing zoning and subdivision regulations provide for the dedication of land for eventual public road use within or adjacent to the development. It is required that sufficient land be dedicated to provide the width necessary for the ultimate road right-of-way based on the road classification of specific street plans. This dedication is based on the presumption that development will intensify use of the property and of the streets which provide access thereto. Findings must be made by the Planning Commission and the Board of Supervisors supporting this presumption when a subdivision application is being considered.

Funds for the acquisition of road right-of-way are derived from several sources. Typical of these sources is Highway Users Tax Funds, transportation funds from sales tax, fines, bonds, the County General Fund and earned interest. Since these funds are used for maintenance and replacement, as well as for the acquisition of right-of-ways, it can be seen that any money utilized for the acquisition of road right-of-ways in new developments will decrease the amount of money available for the maintenance and construction of the county road system elsewhere. Road right-of-way acquisition policies in new developments encompass the possibility of further development beyond these particular pieces of property and usually require the provision of a road right-of-way 'through the property' to adjoining properties in order to provide access in the future. Policy 5 of Goal 1 addresses dedication requirements.

Official Plan Lines. Official Plan Lines have been prepared for a number of roads in the County and adopted by the Board of Supervisors.

Adoption of Official Plan Lines show the intent of the County to widen these streets to a specified width at some future time. Official Plan Lines can be used in two instances, when it is undesirable or impractical to widen a road by requiring equal dedication on both sides of the existing center line, and when equal dedication can be achieved. Unequal dedication can also be required without the use of this tool. Official Plan Lines are established to prevent any unnecessary removal of buildings or important natural features. Once adopted, building activity is prohibited inside the established setback lines although existing buildings may remain.

Identified ultimate road widths for the eventual widening of a road have the important advantage of minimizing the cost to the County in the future. If new structures are permitted to be constructed in the proposed right-of-way, the County will be obligated to purchase portions of buildings and land lying within the proposed street line. Adoption of Official Plan Lines or identification of ultimate street width requires foresight because the entire process (from design to construction) is a slow one. A number of years may elapse before the last building, or even a majority of the buildings, are set back to the adopted line. Building setbacks may cause hardships to the first buildings that are required to be set back of the new line because they appear to be placed at the back of a parcel with old buildings projecting in front of them on both sides.

The following are official plan lines adopted by the Board of Supervisors:

Claus Road - from Highway 132 to Highway 108. 100 ft.

Coffee Road - from Orangeburg Avenue to Sylvan Road. 100 ft.

Crane Road - from Patterson Road to Highway 108. 110 ft.

Crows Landing Road - from Freeway 99 to West Main Avenue. 100 ft.

Hatch Road - from Freeway 99 to Mitchell Road. 100 ft.

Hatch Road - from Carpenter Road to Crows Landing Road. 90 ft.

Hawkeye Road - from Freeway 99 to Berkeley Avenue. 100 ft.

McHenry Avenue - from Briggsmore Avenue to the Stanislaus River. 110 ft.

Monte Vista Avenue - from Freeway 99 to Berkeley Avenue. 110 ft.

North Olive Avenue - from Canal Drive to Monte Vista Avenue. 90 ft.

Orange Blossom Road - from Rodden Road to Knights Ferry (portions only). 80 ft. wide - primary emphasis is to lengthen radius curves.

Paradise Road - from Sutter Avenue to Dunning Lane. 80 ft.

Pelandale-Claratina - from Dale Road to Claus Road. 100 ft.

Sylvan/Standiford - from Freeway 99 to Claus Road. 100 ft.

Yosemite Boulevard - from Modesto City Limits to Waterford City Limits. 100 ft.

Zeering Road - from Highway 99 to Hawthorne Street. 90 ft.

In addition to the above adopted plan lines, and the normal road widths explained for the various street classifications, the zoning ordinance sets forth individual width requirements in the absence of an adopted plan line for State Highway 33, Kiernan Avenue, Santa Fe Avenue and State Highway 108.

Capital Improvement Program. The Capital Improvement Program is another instrument used by local government to aide short and long term planning for improving the facilities they provide to a community. The County's Highway C.I.P. has been established to improve various road sections through the County. By projecting anticipated revenues versus need, the County has more control over its land use and its future residential, commercial, and industrial environment. Policy 3 of Goal 1 addresses the Capital Improvement Program.

Modes of Transportation

Automobile. The automobile remains the most popular form of transportation in Stanislaus County. The California Department of Motor Vehicles reports that 147,130 fee paid automobiles were currently registered within Stanislaus County as of December, 1985. During that same year there were 192,777 licensed drivers. The resulting ratio of licensed drivers to fee paid automobiles is 1.31. This ratio indicates that the population, in general, relies heavily on the use of the automobile for transportation.

Bus. Stanislaus County is presently served by four major companies: Greyhound, Continental Trailways, Stanislaus County Transit, and Storer Transportation.

Greyhound and Continental Trailways provide nationwide service for residents of the County. Storer Transportation provides charter services for groups and individuals.

Stanislaus County Transit provides intercity service within the County. The routes are: Modesto-Turlock, Modesto-Riverbank-Oakdale, Westside Dial-A-Ride, and Central Dial-A-Ride. These routes were primarily oriented to interregional travel demands of the major populated areas of Stanislaus County. Two additional routes provide more specific services. They are: the Medical Van and Senior Opportunity Services Program (S.O.S.P.) vehicles. The Medical Van transports residents of the County to major Bay Area hospitals and clinics for specialized medical treatment that is not available locally. The S.O.S.P. vehicles offer local transportation to the elderly who reside in the cities of Patterson and Newman. Modesto, Turlock, Waterford, Oakdale, and Ceres Dial-A-Ride services provide transportation needs for the residents of their respective cities and some adjacent portions of unincorporated urbanized areas.

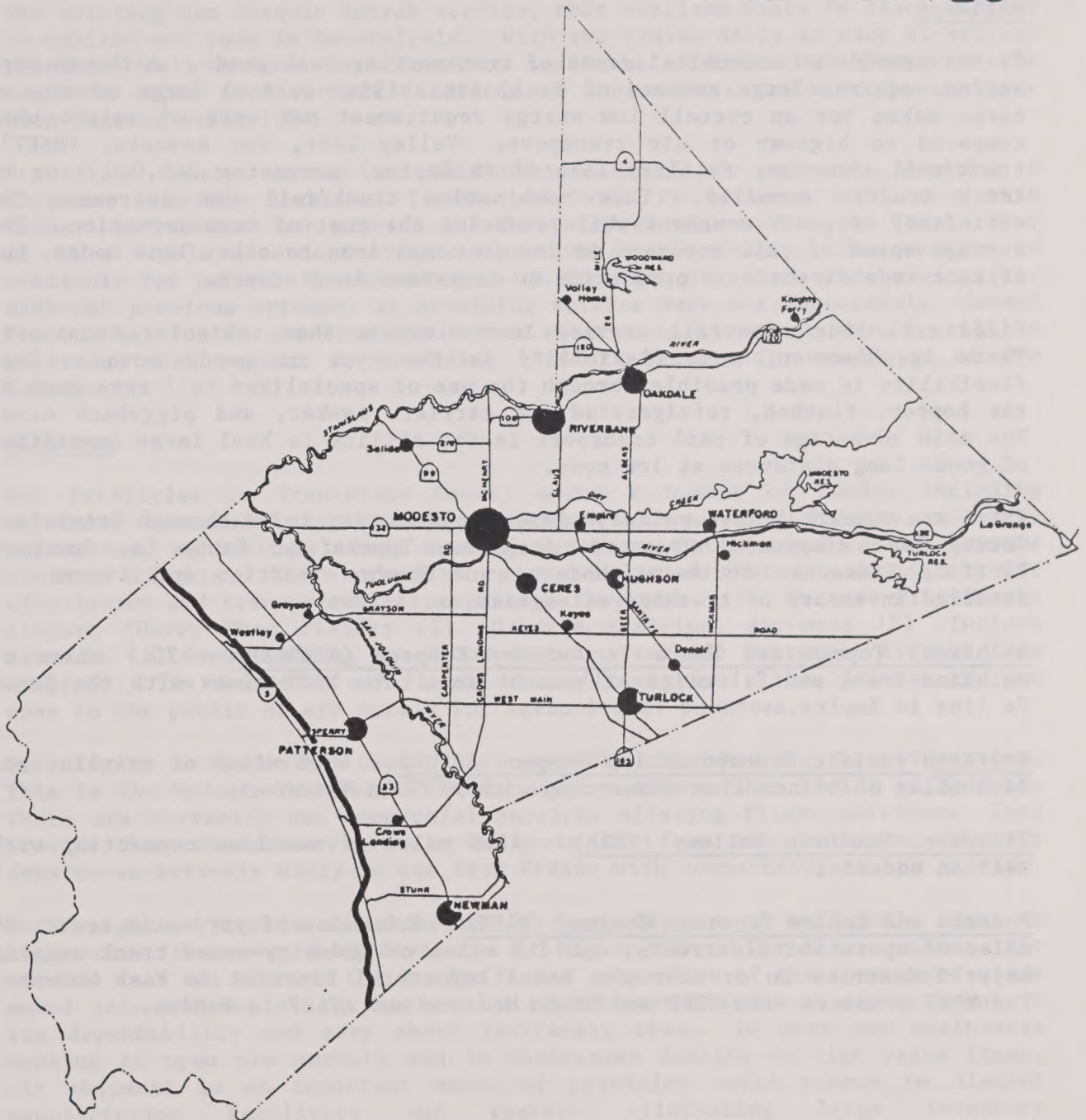
Bus package express service, as provided by Greyhound and Trailways, is an ancillary function to the scheduled passenger service. Because of the small amount handled, it is a very minor contributor to goods movement in the region. The nature of the bus package express is to service the needs of those who ship small quantities of goods under time constraints over short distances. The major alternatives for this specialized service are providers such as United Parcel Service (UPS), REA Express, and the U.S. Postal Service.

Bicycles. Bicycle popularity has increased in recent years. Transportation difficulties, economics, recreation, physical fitness and concern for the environment are all reinforcing the bicycle as a vital means of transportation. This is reflected in increasing public awareness for the need of pathways and routes where bicycles can be ridden in relative safety.

The existing system of bicycle facilities in Stanislaus County is somewhat limited. The only major County route is along the bank of the California Aqueduct (see map on page 85). This bike route is approximately 31 miles long. The remainder of designated bike routes are predominantly clustered in and around urbanized areas. Much of the County area remains fairly rural and is not too congested. Bicyclists can travel fairly easily at their own prerogative.

A plan prepared by the Stanislaus Area Association of Governments entitled Stanislaus Non-Motorized Areawide Plan (SNAP), discusses further, the design feature of various classes of bicycle facilities and suggests implementation policies for non-motorized transportation facilities.

BIKE ROUTES



Pedestrian. Since Stanislaus County is rural in nature, this requirement is directed at urban-related development. New development in the County is required, through implementation of minimum standards, to provide adequate pathways for pedestrian traffic.

Railways

Trains provide an economical means of transporting bulk goods. Although each engine requires large amounts of fuel, its ability to haul large amounts of cargo makes for an overall low energy requirement per unit of weight when compared to highway or air transport. Valley Lift, for example, (M&ET's truck/rail interface facility located in Empire) generates 246,000 tons of truck traffic annually. This combination truck/rail use increases the efficiency of goods movement while reducing the cost of transportation. The average speed of rail movement is low in comparison to other land modes, but it increases directly in proportion to increases in distance.

Fixed rail beds make rail service less flexible than vehicular transport. There is, however, some flexibility in the type of goods moved. This flexibility is made possible through the use of specialized rail cars such as the hopper, flatbed, refrigerated car carrier, tanker, and piggyback cars. The main advantage of rail transport is the ability to haul large quantities of goods long distances at low cost.

There are currently five railway companies operating in or through Stanislaus County (see diagram). They are Atchison, Topeka and Santa Fe, Southern Pacific, Tidewater Southern, Modesto and Empire Traction and Sierra. A detailed inventory of trackage mileage is as follows:

Atchison, Topeka and Santa Fe Railway Company (AT&SFRR) - 20.7 miles of mainline track and 7.1 miles of branch line. The M&ET links with the Santa Fe line in Empire.

Southern Pacific Transportation Company (SPRR) - 48.8 miles of mainline and 34.0 miles of branch line connecting with M&ET in Modesto.

Tidewater Southern Railway (TSRR) - 41.8 miles of mainline connecting with M&ET in Modesto.

Modesto and Empire Traction Company (M&ET) - 5.0 miles of yard main track, 39 miles of spurs and sidetracks, and 3.3 miles of industry-owned track serving major industries in or near the Beard Industrial District in East Modesto. The M&ET connects with TSRR and SP in Modesto and AT&SF in Empire.

Sierra Railroad Company - 19.2 miles mainline and no branch line. This railroad is presently inactive. It has been used to transport lumber from the mountains to the valley and to provide the motion picture industry with props and scenery relative to historical filming.

The existing San Joaquin Amtrak service, that utilizes Santa Fe track, begins in Oakland and ends in Bakersfield. With two trains daily in each direction, passenger rail service is offered to residents of Stanislaus County at the Santa Fe depot in Riverbank. Efforts to implement a depot in Denair have been ongoing since 1984.

Stanislaus County, Amtrak and CALTRANS officials are presently awaiting a decision from the Atchison, Topeka and Santa Fe Railroad concerning this issue. Amtrak does not provide any intercity service within the County, but it is a viable alternative for trips outside the County. Bus service is available for persons transferring to or from San Francisco and Los Angeles. Although previous attempts at providing service were not successful, demand for bus service to and from the Amtrak station in Riverbank should still be monitored with respect to providing 'feeder' service for residents of the County.

Airports

Air facilities in Stanislaus County serve a number of needs, including scheduled commercial air passenger service, recreational flights, military operations, agricultural crop dusting services, cargo services and private business flights. There are five major facilities that are of concern for circulation and transportation purposes. They are: (1) Modesto City-County Airport (Harry Sham Field); (2) Oakdale Municipal Airport; (3) Turlock Airpark; (4) Crows Landing Naval Air Station; and (5) Patterson Airport (see diagram). The remaining air fields in the County are either private and not open to the public or are purely for agricultural purposes.

One airport in Stanislaus County has regularly scheduled air carrier service. This is the Modesto-Stanislaus County Airport (Harry Sham Field) at Modesto. There are currently two commercial carriers offering flight services. They provide four departures/arrivals daily to and from San Francisco and four departures/arrivals daily to and from Fresno with connections to Los Angeles.

Air freight service is characterized by fast shipment of small bulk items or high value items over long distances at higher cost. For these reasons, air service does not account for a significant proportion of the tonnage of goods moved into and out of the region. A significant feature of air movement is its dependability and very short in-transit time. In many new businesses seeking to open new markets and in businesses dealing in high value items, air shipment is an important means of providing rapid access to distant manufacturing facilities and thereby eliminating large inventory requirements. In such cases, air shipment makes it possible to establish supply lines quickly and lowers the cost of maintaining inventory significantly. This offsets the higher cost of air service.

Air freight service is available at the Modesto City-County Airport through use of commercial airlines, private handling companies and the U.S. Postal Service.

Brief summaries of the air facilities within Stanislaus County follows:

Modesto City-County Airport (Harry Sham Field). The Modesto City-County Airport is located within the city of Modesto and has been located at its present site for over fifty years. In 1934, Modesto acquired 77 acres of land at the present location which has grown over the years to its present area comprising 440 acres. The airport is located at the southeast edge of the city, nearly in the geographic center of the County.

The 5,900 feet of runway provides the necessary length for jet airline service to this airport. Other technological improvements include a Terminal-Very-High Frequency-Omni-Directional Range (TVOR) finder and an Air Traffic Control Tower. The airport is an allweather facility which includes a full instrument runway with both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) capabilities. Due to severe weather conditions (i.e. fog, thunderstorms, etc.) occasionally the airport will close to incoming and departing flights.

Oakdale Municipal Airport. Oakdale Municipal Airport is owned by and located 3 miles southeast of the City of Oakdale. The 2,400 ft. east-west runway can be used in either direction utilizing Visual Flight Rules. However, an instrument approach can be made from the west. The major use of this airport is private aviation.

Turlock Airpark. Turlock Airpark is located 2 miles south of the City of Turlock. The public is welcome to use the 2,000 ft. north-south runway. Visual approaches can be made from either direction.

Crows Landing Naval Air Station. The station functions as an auxiliary landing field, for operations from Moffett Field, Lemoore NAS, Alameda NAS, Castle Air Force Base, the Air National Guard, and the National Aeronautics and Space Administration (NASA). Crows Landing serves as an important training and testing facility for the air operations of other air stations impacted by their own volume of air traffic or by urban encroachment or both factors. As one or both of these factors increase, NALF Crows Landing's mission is increasingly more important to the maintenance of fleet readiness and national defense.

Facilities consist of two concrete runways in an "X" configuration with operations and personnel support facilities occupying 30 acres of the approximately 1,528 acres covered by the station. Much of the land surrounding the runways is under agricultural outlease.

Patterson Airport. Patterson Airport is located 2 miles west of Patterson. Although the airport is privately owned, the public is welcome to use the facilities. There is one 2,500 ft. by 75 ft. north-south runway, of which the northern 665 ft. is unpaved.

The Stanislaus County Planning Commission was designated as the body to assume the responsibility of the Stanislaus County Airport Land Use Commission. The State Public Utilities Code requires that an Airport Land Use Commission be created in each county having at least one airport served by a commercial air carrier. The five air facilities previously discussed come under the review of the Commission.

The Stanislaus County Airport Land Use Commission (ALUC) is responsible for formulating a land use plan that will provide for the orderly growth of each public airport and area surrounding the airport. The ALUC is concerned primarily with the incompatibility of uses surrounding airfields. This includes noise, land use, building height and safety factors. Policies 1, 2, 3, 4 and 5 of Goal 2 address modes of transportation.

Transportation Center

Efforts are currently underway to bring together ground forms of public transportation at one location. The City of Modesto will be constructing a Transportation Center at the site of the Southern Pacific Railroad Depot on Ninth Street. Offers have been extended to the major transportation providers requesting their interest and participation in the use and tenancy of this center. If Amtrak relocates to the tracks of Southern Pacific RR, a full complement of interconnecting public transportation systems will be available to the traveling public.

Parking

The Stanislaus County Zoning Ordinance requires that applications for new development include provisions for off-street parking. For example, a new single family dwelling must include two off-street parking spaces and a retail store must provide one space for every 300 square feet of floor area. Standards exist for all other uses also. These standards are periodically reviewed to ensure that adequate off-street parking is provided.

Some existing development may not meet the current parking requirements. In most cases, their contribution to the impaction of parking is minimal.

Pipe And Utility Transmission Lines

Introduction. Stanislaus County is threaded with a network of pipe and utility lines used to transport oil, natural gas, water, and electrical energy. To evaluate the circulation system, it is important to consider all forms of transport including those forms which move commodities through fixed systems.

Waterways. (See map on Page 91)

California Aqueduct. The California Aqueduct, which begins about 30 miles east of San Francisco and passes through Stanislaus County parallel to Interstate 5, terminates near Riverside. It is the principal water conveyance facility of the State Water Project.

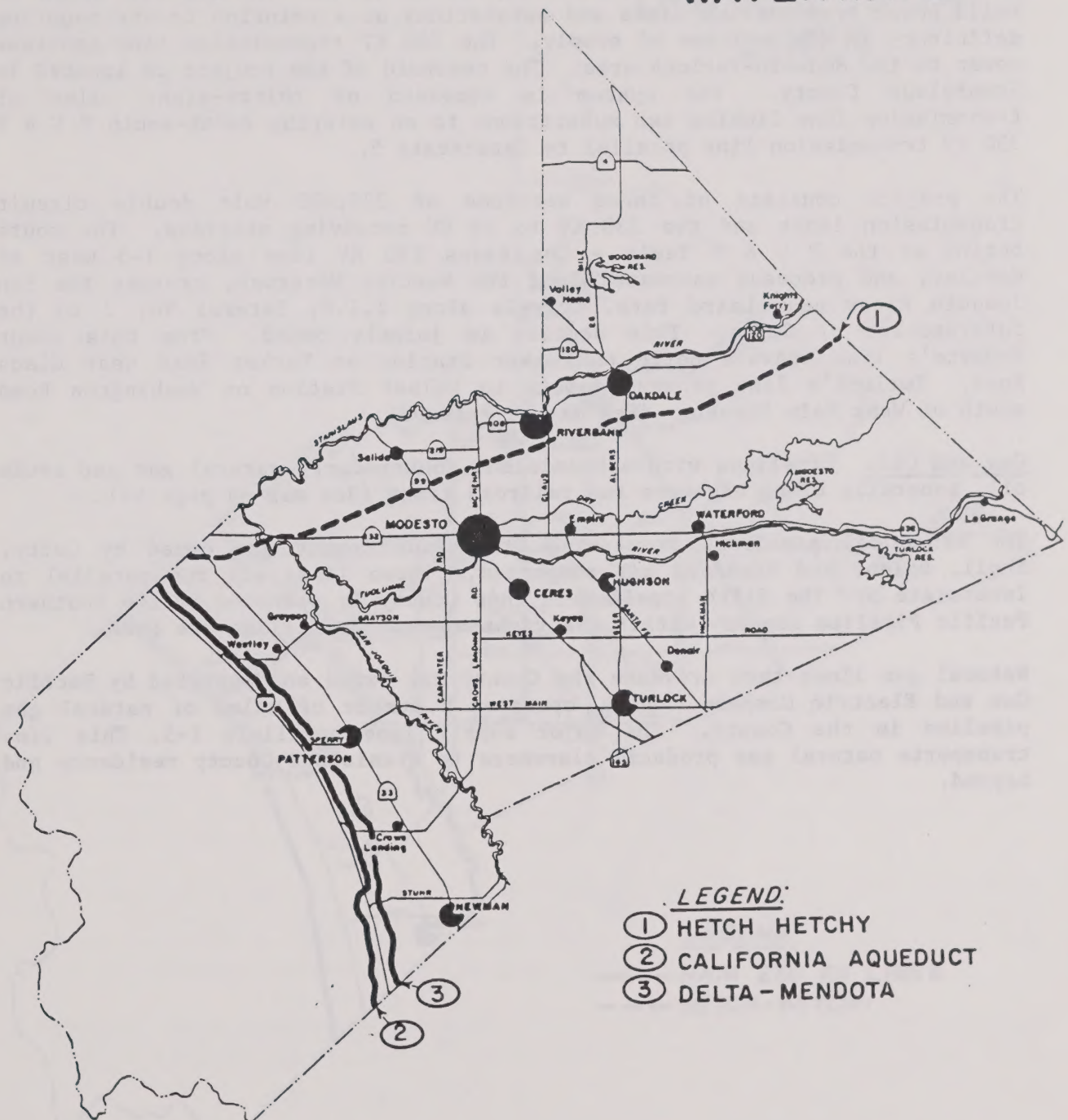
The principal purpose of the California Aqueduct is the delivery of water from a normally abundant source in Northern California to arid portions of Southern California to be used for irrigation and domestic purposes.

Delta-Mendota Canal. The Delta-Mendota Canal is a federally-owned project which was developed to aid flood control, enhance recreation and increase irrigation alternatives. This facility originates in San Joaquin County. It parallels I-5 and ends at the Mendota Slough in Fresno County. Several water districts within Stanislaus County contract with the Bureau of Reclamation for irrigation water from this canal.

Hetch-Hetchy. The Hetch-Hetchy Aqueduct is an underground, enclosed system carrying domestic water from the Hetch-Hetchy Reservoir through the northern portion of the County, across the valley to San Francisco, as well as neighboring communities in most of San Mateo County and parts of Santa Clara and Alameda counties. Farmers have been given permission to farm within the Hetch-Hetchy right-of-way. However, no permanent structures are permitted within the right-of-way.

Irrigation Canals. There are many miles of canals and ditches that distribute irrigation water to the farmlands of Stanislaus County. Presently, there are nineteen (19) irrigation and/or water districts formed to use and maintain this system.

WATERWAYS



Electrical. In 1974, the electrical capacity of the Modesto Irrigation District (MID) and the Turlock Irrigation District (TID) was met by the hydroelectrical generation from Lake Don Pedro, jointly owned by the two districts, and the City and County of San Francisco with their Hetch Hetchy System. By 1975, these systems were expected to be inadequate to meet project load requirements. Therefore, in 1974, the MID and TID began to build power transmission lines and substations as a solution to the mounting deficiency in the sources of supply. The 230 KV transmission line provides power to the Modesto-Turlock area. The centroid of the project is located in Stanislaus County. The system is composed of thirty-eight miles of transmission line linking two substations to an existing north-south P G & E 230 KV transmission line parallel to Interstate 5.

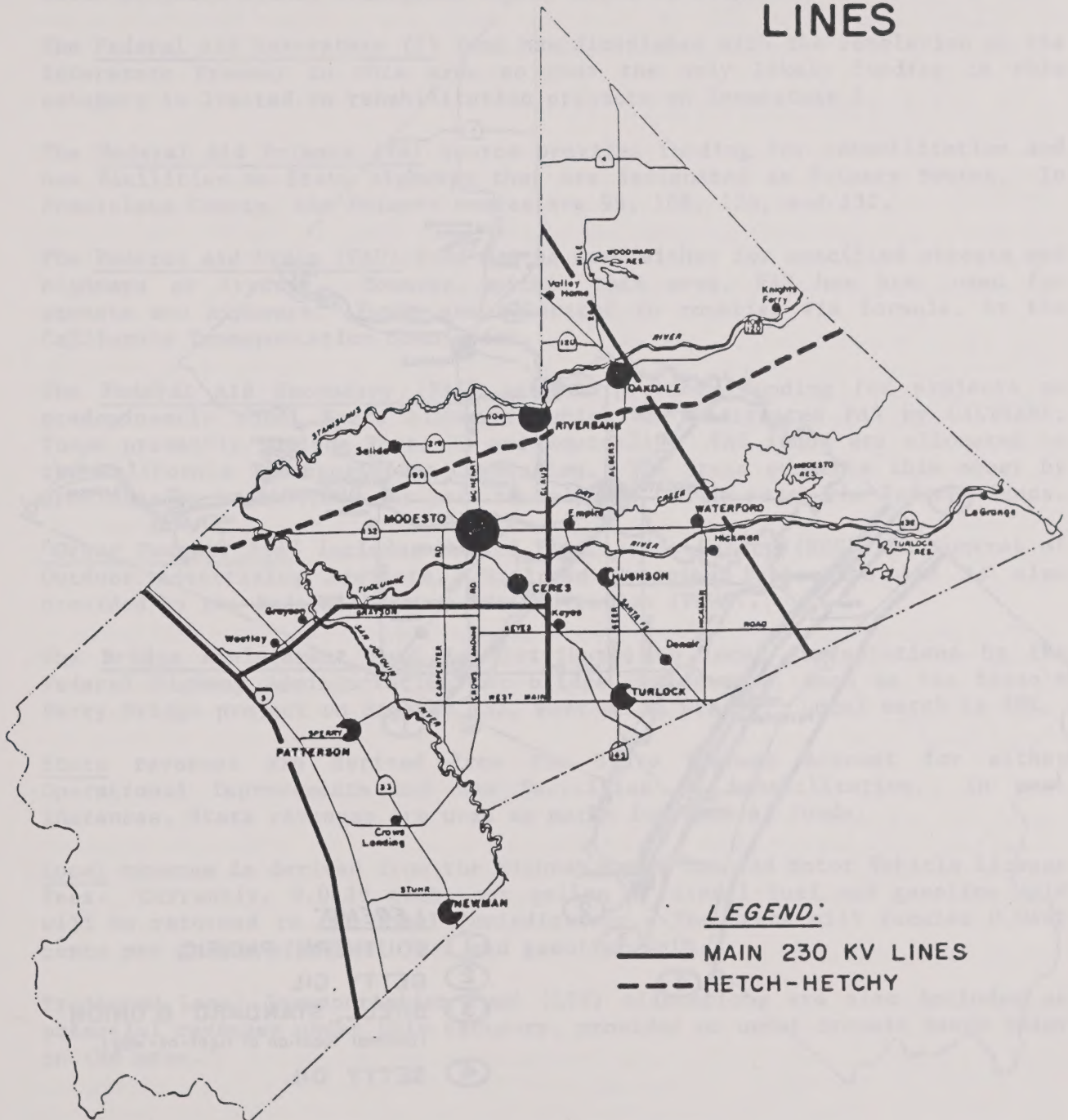
The project consists of three sections of 230,000 volt double circuit transmission lines and two 230 KV to 59 KV receiving stations. The route begins at the P G & E Tesla - Los Banos 230 KV line along I-5 west of Westley, and proceeds eastward along the Westley Waterway, crosses the San Joaquin River near Laird Park, travels along T.I.D. lateral No. 2 to the intersection of Ceres. This section is jointly owned. From this point Modesto's line travels north to Parker Station at Parker Road near Claus Road. Turlock's line proceeds south to Walnut Station on Washington Road south of West Main Street. (See map on Page 93).

Gas and Oil. Pipelines within Stanislaus County carry natural gas and crude oil, generally along highways and railroad lines (See map on page 94).

The crude oil pipelines traversing Stanislaus County are owned by Getty, Shell, Union, and Standard oil companies. These lines all run parallel to Interstate 5. The fifth pipeline in this County is operated by the Southern Pacific Pipeline Company within the right-of-way paralleling the SPRR.

Natural gas lines that traverse the County are owned and operated by Pacific Gas and Electric Company. PG&E. operates a number of miles of natural gas pipeline in the County. The major supply line parallels I-5. This line transports natural gas produced elsewhere to Stanislaus County residents and beyond.

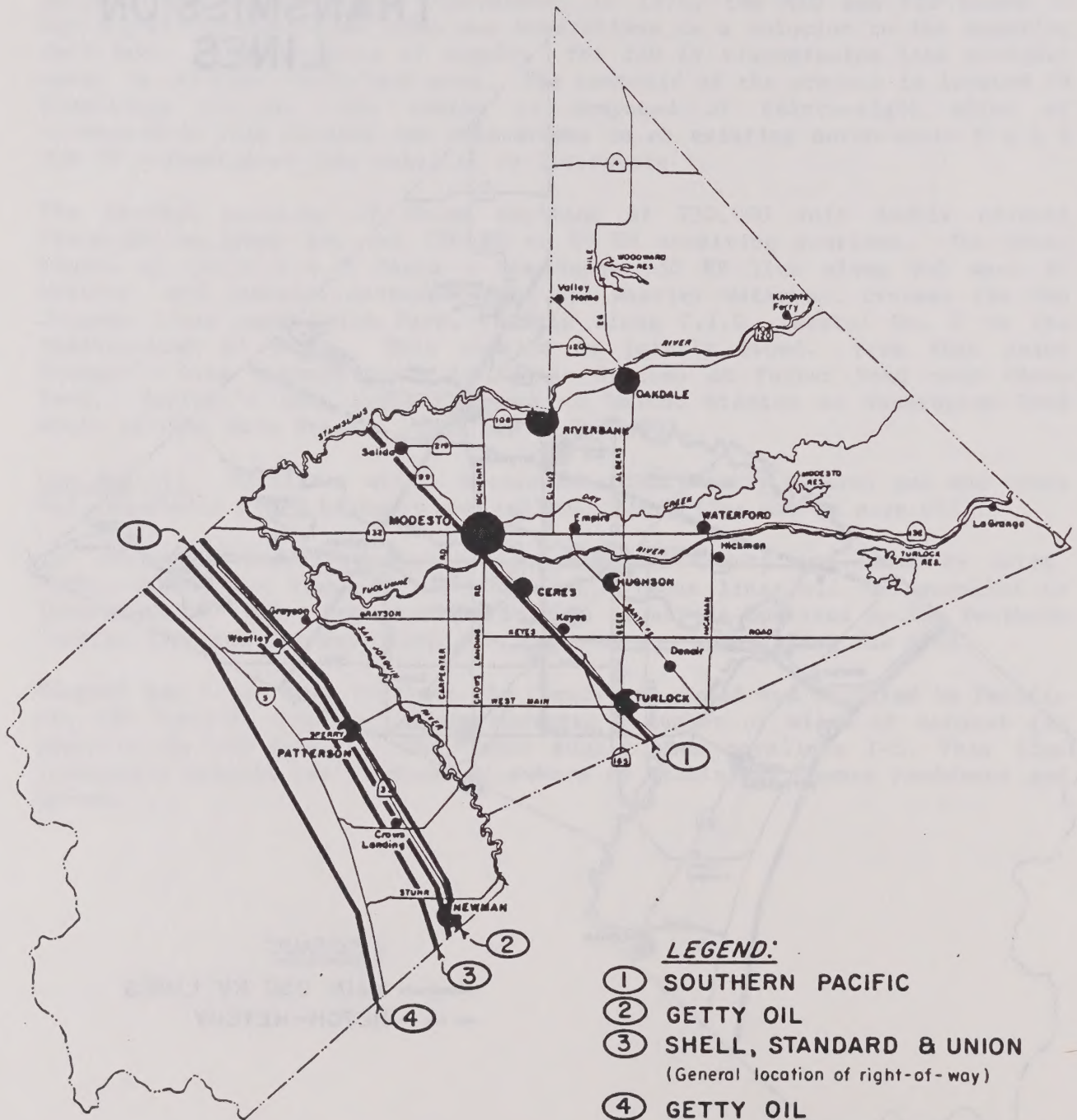
TRANSMISSION LINES



LEGEND:

- MAIN 230 KV LINES
- HETCH-HETCHY

PIPELINES



FUNDING

STREETS AND HIGHWAYS

The figures concerning highway funding include those from a variety of revenue sources. Following is a brief discussion of current sources for which projects within Stanislaus County might be eligible.

The Federal Aid Interstate (I) fund has diminished with the completion of the Interstate Freeway in this area so that the only likely funding in this category is limited to rehabilitation projects on Interstate 5.

The Federal Aid Primary (FA) source provides funding for rehabilitation and new facilities on State highways that are designated as Primary routes. In Stanislaus County, the Primary routes are 99, 108, 120, and 132.

The Federal Aid Urban (FAU) fund may be used either for specified streets and highways or transit. However, within this area, FAU has been used for streets and highways. Funds are allocated to counties via formula, by the California Transportation Commission.

The Federal Aid Secondary (FAS) program provides funding for projects on predominantly rural State highways, which are designated FAS by CALTRANS. These presently include Route 33 and Route 219. FAS funds are allocated by the California Transportation Commission. The State augments this money by providing up to \$100,000 per year to help the County match the Federal funds.

"Other Federal Aid" includes Hazard Elimination Safety (HES) and Control of Outdoor Advertising Projects. Railroad Crossing Protection Aid is also provided by the Federal Highway Administration (FHWA).

The Bridge Replacement Fund is distributed to local jurisdictions by the Federal Highway Administration for bridge replacement, such as the Basso's Ferry Bridge project on Highway 132, west of La Grange. Local match is 20%.

State revenues are derived from the State Highway Account for either Operational Improvements and New Facilities or Rehabilitation. In most instances, State revenues are used as match for Federal funds.

Local revenue is derived from the Highway Users Tax and Motor Vehicle License Fees. Currently, 0.0439 cents per gallon of diesel fuel and gasoline sold will be returned to the local jurisdictions. The State will receive 0.0461 cents per gallon of diesel fuel and gasoline sold.

Projected Local Transportation Fund (LTF) allocations are also included as potential revenues under this category, provided no unmet transit needs exist in the area.

TRANSIT

LTF (Local Transportation Fund) is a source based on sales of gasoline and diesel fuel. Any LTF allocation not used for transit may be used for street and highway projects.

UMTA Section 18 (formula) aids in funding rural transit operations. It currently provides \$50,000 per year for operations. These funds are slated exclusively for Turlock's transit service.

STAF (State Transit Assistance Fund) is a source of funding for Stanislaus County Transit.

AVIATION

Funding for aviation projects in Stanislaus County comes from Federal Aviation Administration (FAA) grants, State Division of Aeronautics (DOA) grants and loans and local city and county general funds.

FAA funds are available from the Federal Aviation Administration through a discretionary application process. In the past, a considerable amount of money for the Modesto-County Airport was generated by airline ticket taxes. With a change in the status of the airport to a commercial service airport, it is no longer eligible for these funds. Discretionary money is available, however, which must be applied for and approved on an annual basis.

The DOA administers three sources of funds to support general aviation. The California Aeronautics Grant Program (AGP) provides funds to the three publicly owned airports in the county (Modesto, Turlock and Oakdale).

The California Airport Acquisition and Development Program (A&D) provides funds to capital improvement projects at publicly owned airports. These funds are allocated by the California Transportation Commission (CTC) on a discretionary basis, however, so it is impossible to budget these funds for Stanislaus County airports.

The State also has a loan program available to airports. These loans are made for projects that cannot otherwise be financed, are considered highly necessary to meet local requirements, and are of statewide interest. Applications must be submitted and all loans made must be repaid along with interest over a period not to exceed twenty-five years.

Local funds are derived from the Cities' and the County's general funds.

NONMOTORIZED

The funding for most local bikeway and other nonmotorized projects is derived from 2% of the Local Transportation Fund allocation. These funds are available for both pedestrian and bicycle projects. Stanislaus County and all cities in the county are required to provide a 10% match.

The State Highway Account also has funding available for various local nonmotorized projects when certain eligibility standards are met.

The Bicycle Lane Account (BLA) supplies funds for projects contained in a city or county's General Bikeway Plan. Stanislaus Area Association of Governments has prepared the Stanislaus Non-Motorized Areawide Plan (SNAP). This plan discusses design features of various classes of bicycle facilities and suggests implementation policies. Section 2106(b) of the Streets and Highways Code requires that an annual sum of \$360,000 from the State tax revenues be deposited in the Bicycle Lane Account administered by CALTRANS. It is intended that these funds be used to assist local agencies in developing a bicycle transit system which will provide an alternate means of transportation for commuters. Local agencies must match at least 10% of the cost of projects funded by this program.

The funds are for projects that serve the functional needs of commuting bicyclists in accordance with the priorities set forth in Section 2386 of the Streets and Highways Code. The construction of nonmotorized transportation facilities follows the path of a State highway. State funding is permitted if the bike project will enhance the traffic safety and capacity of the State highway. The California Transportation Commission sets the funding level in the five-year State Transportation Improvement Program.

RAIL

Although AMTRAK and Southern Pacific are routed through this region, funding for rail is not discussed individually for two reasons. First, rail projects are usually handled on private, State, and Federal levels. And second, local rail projects involve railroad crossings and signalizations which are included with the street and road projects.

PARATRANSIT

Ridesharing and Vanpooling programs are available to Stanislaus County residents. These programs provide opportunities for commuters to share transportation to and from work. Although the program is no longer administered locally, San Joaquin and Merced County Councils of Government can provide program assistance.

SAAG'S ROLE IN TRANSPORTATION FUNDING

The Stanislaus Area Association of Governments (SAAG) plays a pivotal role in the transportation of Stanislaus County. It has been designated as the Regional Transportation Planning Agency (RIPA) in this area. As such it takes on various responsibilities, the first of which is in the area of transportation planning.

SAAG has worked for several years with Caltrans staff in transportation studies. In the early 1970's a home interview survey was taken throughout the County as a part of the development of a computerized traffic model. This model is used to project future trips and air pollution emissions for the County. The working relationship between SAAG and Caltrans was strengthened by the passage of AB69 and further modified by AB402 which set up a state of transportation board and required SAAG to produce and periodically update a regional transportation plan. This planning work has produced population and other projections utilized by various agencies within the County.

SAAG also carries a very important function in the transportation funding process of the County. It is the agency which must review and package many of the funding requests by local jurisdictions for federal transportation monies. Additionally, local transportation funds stemming from state sales tax also are disbursed through SAAG.

There are various plans and reports required of SAAG in this process. Every year a Transportation Improvement Plan (TIP) is prepared showing the federally funded projects of the Modesto-Ceres urbanized area. The state requires that a report showing major projects and their proposed funding year be prepared for the implementation portion of the Regional Transportation Plan (RTP). In recent years one report, generally a compilation of the transportation projects from local capital improvement programs, has been produced as a combined TIP and implementation report for the RTP. SAAG also must produce a Transportation System Management Element (TSME) consisting of a list of transportation projects designed to be cost effective in reducing energy consumption and air pollution while at the same time increasing mobility. This requirement stems from the interest in mobility of the Federal Highway Administration (FHWA) and the environmental and energy interests of State Air Resources Board (ARB).

The Federal Environmental Protection Agency (EPA) and Federal Highway Administration (FHWA) have required SAAG to determine if the Regional Transportation Plan and the TIP are consistent with the State Implementation Plan (SIP). (This is a federal plan which consists of a set of strategies to reduce air pollution.) ARB also has the same consistency requirements with respect to its SIP. This latter SIP is loosely composed of all the programs adopted by ARB including the Air Quality Maintenance Plan (AQMP) requirements and the local Air Pollution Control District (APCD) regulations.

The consistency requirement is one of a number of requirements which must be fulfilled by SAAG in order to continue its certification by FHWA as the local transportation planning agency. Certain federal funds are contingent on FHWA certification.

Chapter III

Conservation/ Open Space

INTRODUCTION

Prior to 1970, the State Planning and Zoning Act required each city and county to have a General Plan consisting of a land use element, circulation element, housing element, scenic highways element, and safety element. In response to an increased citizen awareness of the environment, the State enacted legislation requiring the adoption of a conservation element and an open space element. A noise element and a seismic safety element were required in 1971. Since each new element originated in response to specific environmental concerns, there is overlap in the requirements. To avoid duplication of effort in these separate but interrelated elements, the Conservation and Open Space Elements of the Stanislaus County General Plan have been combined as allowed by Sections 65301 and 65302 of the Government Code.

The Conservation element emphasizes the conservation and management of economically productive natural resources. The open space element is closely related to the conservation element in that it also emphasizes conservation for aesthetic, cultural and safety reasons. Open space land is any parcel or area of land or water which is essentially unimproved and devoted to an open-space use as defined as follows:

Open space for the preservation of natural resources including, but not limited to, areas required for the preservation of plant and animal life, including habitats for fish and wildlife species;

Open space used for the managed production of resources, including rangeland, agricultural lands and areas of economic importance for the production of food and fiber; areas required for recharge of ground water basins, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply;

Open space for outdoor recreation, including areas of outstanding scenic, historic and cultural value, areas particularly suited for park and recreation purposes, including access to lakeshores, beaches, rivers and streams, and areas which serve as links between major recreation and open space reservations, including utility easements, river and stream banks, trails and scenic highway corridors;

Open space for public health and safety, including areas which require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and areas required for the protection and enhancement of air quality.

NATURAL RESOURCES

AGRICULTURAL RESOURCES

Agriculture is and will continue to be a major industry and a prime determinant in the economic base of Stanislaus County. Stanislaus County plays a major role in California's agricultural production. In terms of dollars produced from agriculture, this County ranks sixth in California and ninth in the nation. The County ranks as one of the top five producers in the nation for milk, eggs, chickens, turkeys, almonds, walnuts, peaches, beans, silage and cherries. One of the strengths of the county's agriculture is the diversity of the crops produced. (See Table 3-1 for Stanislaus County's leading commodities.)

TABLE 3-1
STANISLAUS COUNTY LEADING COMMODITIES

<u>1985</u> <u>Rank</u>	<u>Commodity</u>	<u>Value</u>	<u>1984</u> <u>Rank</u>
1	Milk, All	\$211,949,000	1
2	Chickens, All	118,433,000	2
3	Almond Meats	66,009,000	4
4	Chicken Eggs, All	60,101,000	3
5	Cattle & Calves, All	35,442,000	5
6	Peaches, All	31,434,000	6
7	Walnuts, In-Shell	25,620,000	8
8	Tomatoes, All	23,668,000	10
9	Turkeys, All	21,625,000	12
10	Silage, All	19,504,000	7

The gross agricultural income for 1985 is estimated to be \$772,299,380 which reflects a decrease from the previous year. This is the third decrease in the last four years of gross agricultural income. (Refer to Table 3-2) A summary of the agricultural products produced, the acreage harvested and the estimated value for 1984 and 1985 is depicted in Table 3-3.

TABLE 3-2

FIVE YEAR SUMMARY IN THOUSANDS OF DOLLARS

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Field Crops	\$ 97,969	\$ 95,731	\$ 82,943	\$ 87,978	\$ 89,441	\$ 82,331
Seed Crops	2,692	4,080	2,395	1,625	1,255	2,969
Vegetable Crops	34,277	40,678	41,401	43,038	47,049	50,283
Fruit & Nut Crops	200,687	177,259	173,461	120,770	177,040	163,048
Nursery Products	12,910	16,333	13,249	18,021	12,763	12,015
Livestock & Poultry	144,120	166,001	150,504	167,411	171,133	177,578
Livestock & Poultry Products	247,837	276,876	275,458	278,366	292,183	280,106
Apiary Products	<u>3,092</u>	<u>4,227</u>	<u>4,226</u>	<u>3,531</u>	<u>3,759</u>	<u>3,969</u>
TOTALS	\$743,584	\$781,185	\$743,637	\$720,740	\$794,623	\$772,299

Table 3-3

<u>Item</u>	<u>Year</u>	<u>Harvested</u>	
		<u>Acreage</u>	<u>Estimated Value</u>
Apiary Products	1985		\$3,968,680
	1984		3,759,260
Field Crops	1985	611,390	82,330,900
	1984	619,843	89,441,000
Fruit & Nut Crops	1985	121,899	163,048,000
	1984	118,007	177,040,000
Livestock & Poultry	1985		177,578,000
	1984		171,133,000
Livestock & Poultry Products	1985		280,106,400
	1984		292,182,800
Nursery Products	1985	734	12,015,400
	1984	725	12,762,600
Seed Crops	1985	4,525	2,969,000
	1984	3,200	1,255,000
Vegetable Crops	1985	43,603	50,283,000
	1984	43,066	47,049,000
TOTAL	1985	782,151	\$772,299,380
	1984	784,841	\$794,622,660

The reason for our local crop diversity and productivity has been the result of fertile soils, generous sunshine and the availability of quality, low cost water. Also, agricultural success in our county can be attributable to various programs by both governmental agencies and private industry to keep plant disease and insects under control.

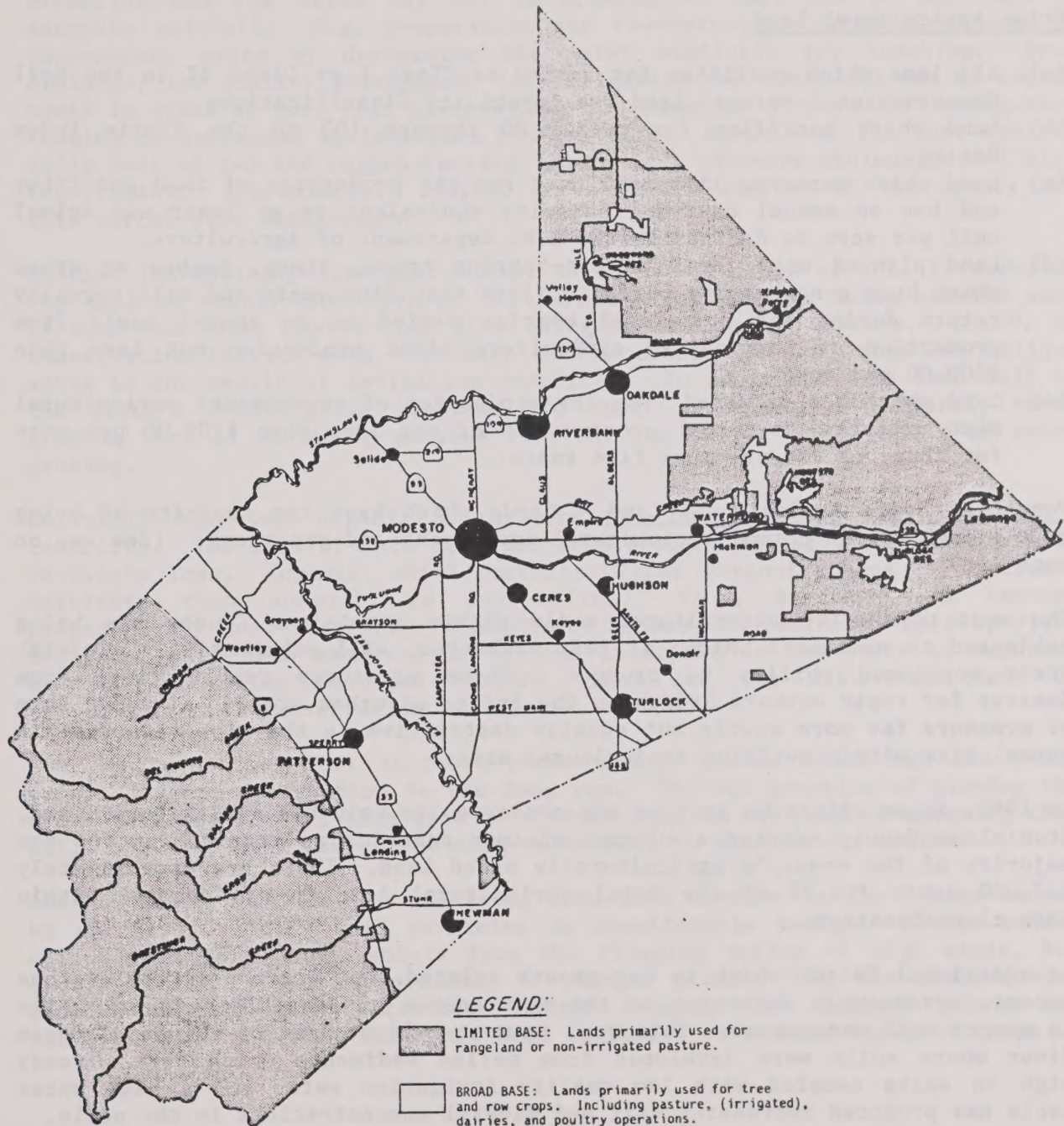
Along with agricultural production as an important economic factor within Stanislaus County is the processing of agricultural products. In 1984, the value of agricultural production in Stanislaus County was \$805.2 million and the value of the processing of agricultural products was estimated to be \$1.4 billion. In a report titled "Economic Impacts of Agricultural Production and Processing in Stanislaus County" by Armen V. Sarquis, a series of multipliers were developed to relate the direct costs of production and processing to the economy of the County. Overall, one dollar spent on production and processing represents a \$2.17 return to the area. (The figure is \$3.20 for 1986.) Using multipliers from the Economic Impact Study, this represents a total value to the county of 4.78 billion dollars, and was responsible for creating 45,198 full-time equivalent jobs. The following table summarizes the economic impact by commodity group:

Commodity Group	Production Value (mil. \$)	Added Value of Processing (mil. \$)	Economic Impact Value (mil. \$)	Increase in Regional Personal Income (mil. \$)	Full-Time Equivalent Jobs Created (number)
Field Crops	\$ 89.4	\$ 27.8	\$ 225.0	\$ 80.1	1,902
Seed Crops	1.1	3.2	8.9	2.6	63
Vegetable Crops	48.3	672.2	1,584.1	479.7	14,481
Fruit & Nut Crops	180.8	456.5	1,439.1	593.1	15,627
Livestock	41.7	7.7	98.3	24.2	761
Poultry Products	217.9	152.5	734.6	155.2	6,398
Nursery Products	12.8	5.3	37.0	17.7	1,025
Dairy	213.1	76.5	652.1	215.8	4,941
TOTAL	\$ 805.2	\$1,401.7	\$4,779.1	\$1,568.4	45,198

NOTE: Data from "Economic Impact of Agricultural Production and Processing on Stanislaus County" by Armen Sarquis and "Estimated Economic Impacts in California: The San Joaquin Basin Input-Output Model: by George Goldman and Marian O'Regan.

In addition to the broad base agricultural lands where the majority of agricultural crops, dairy and poultry products are produced, there is an abundance of grazing lands in the foothill areas of the county that are becoming increasingly important to cattle producers and dairy farmers. These limited base agricultural lands are capable of yielding a substantial contribution to the overall agricultural base of the county. Approximately half of the area of the county is designated as limited base agricultural lands used primarily for rangeland or non-irrigated pasture. (See map on page 105)

LIMITED/BROAD BASED AGRICULTURAL LANDS



SOURCES: Stanislaus County Department of Planning and Community Development

SOIL RESOURCES

The continued viability of agricultural crop production is related directly to the preservation of its highly productive soils. Although there has been much discussion with respect to the definition of prime and potentially prime agricultural land, the most prevalent definitions are as follows:

Prime Agricultural Land

- (a) All land which qualifies for rating as Class I or Class II in the Soil Conservation Services' Land Use Capability Classifications.
- (b) Land which qualifies for rating 80 through 100 in the Storie Index Rating.
- (c) Land which supports livestock used for the production of food and fiber and has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.
- (d) Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and will normally return during the commercial bearing period on an annual basis from production of unprocessed agriculture plant production not less than \$200.00 per acre.
- (e) Land which has returned from the production of unprocessed agricultural plan products an annual gross value of not less than \$200.00 per acre for three of the previous five years.

Potential Prime Agricultural Land - Lands which have the capacity of being made prime through normal agricultural investment and practices. (See map on page 108)

The most productive agricultural soils within Stanislaus County are being subjected to pressures which, if left unchecked, will substantially diminish their continued ability to produce. These pressures result first from desires for rapid outward growth on the fringe of urban areas. A second form of pressure far more subtle but equally destructive is the slow reduction in parcel size within outlying agricultural areas.

In 1983, in an effort to protect and conserve its valuable agricultural land, Stanislaus County adopted a 40-acre minimum parcel size requirement for the majority of the county's agriculturally zoned land. There are approximately 617,000 acres (68.3% of the total agricultural land in the county) within this classification.

An additional factor which is not growth related, but which nevertheless has become increasingly important to the maintenance of Stanislaus County soils is proper soil management. This need is most evident west of the San Joaquin River where soils were developed from marine sediments which were already high in salts coupled with low quality irrigation water and a high water table has produced increasing salt and mineral concentrations in the soils.

Traditionally, agriculture has been practiced on soils which were free of troublesome salts. Undoubtedly, more irrigable lands would have been under production if it were not for the uncertainties resulting from the development of salt-affected soils. Recently, salt-affected lands have been developed at an increasing rate in Stanislaus County, as well as in other areas of California. In arid regions such as this, leaching is not very effective and the salts may not be transported away due to the lack of adequate rainfall. High evaporation and transpiration rates also tend to concentrate salts by decreasing the water available for leaching. Poor drainage, low quality groundwater for irrigation and continued use of septic tanks in areas of poor soil permeability are examples of poor soil management leading to decreased agricultural productivity. Because of the poor quality soils west of I-5 and rugged terrain, there is a 160-acre minimum parcel size requirement. Approximately 236,600 acres or one-quarter of the county has this parcel size designation.

Another increasingly important factor in the destruction of soil is erosion. The soil on nearly one-fifth of California's farmland is being carried away by wind and water faster than it's being replenished by nature. The U. S. Conservation Service says that much of the erosion on more than one million acres is the result of irrigation practices. In addition, more than half of the state's nonirrigated cropland and about one-third of privately owned grazing land is suffering serious erosion, the latter as a result of overgrazing.

Colloidal clay and organic matter are the base of most of the soil's fertility. The loss of this material from eroding fields cause considerable fertility loss. Topsoil, which contains higher concentrations of available nutrients than subsoil, is lost first. Thus, eroding soil becomes progressively less fertile. Productivity losses, as indicated by crop-yield declines, have been measured in various locations in the state by numerous sources, including American Farmland Trust and the U.S. Department of Agriculture Soil Conservation Service.

New farm practices that increase productivity in the short run are prime causes of soil destruction in the long run. The old practice of plowing the weeds under or letting them grow as a cover crop is replaced by spraying that kills the weeds and leaves the soil vulnerable to erosion for months.

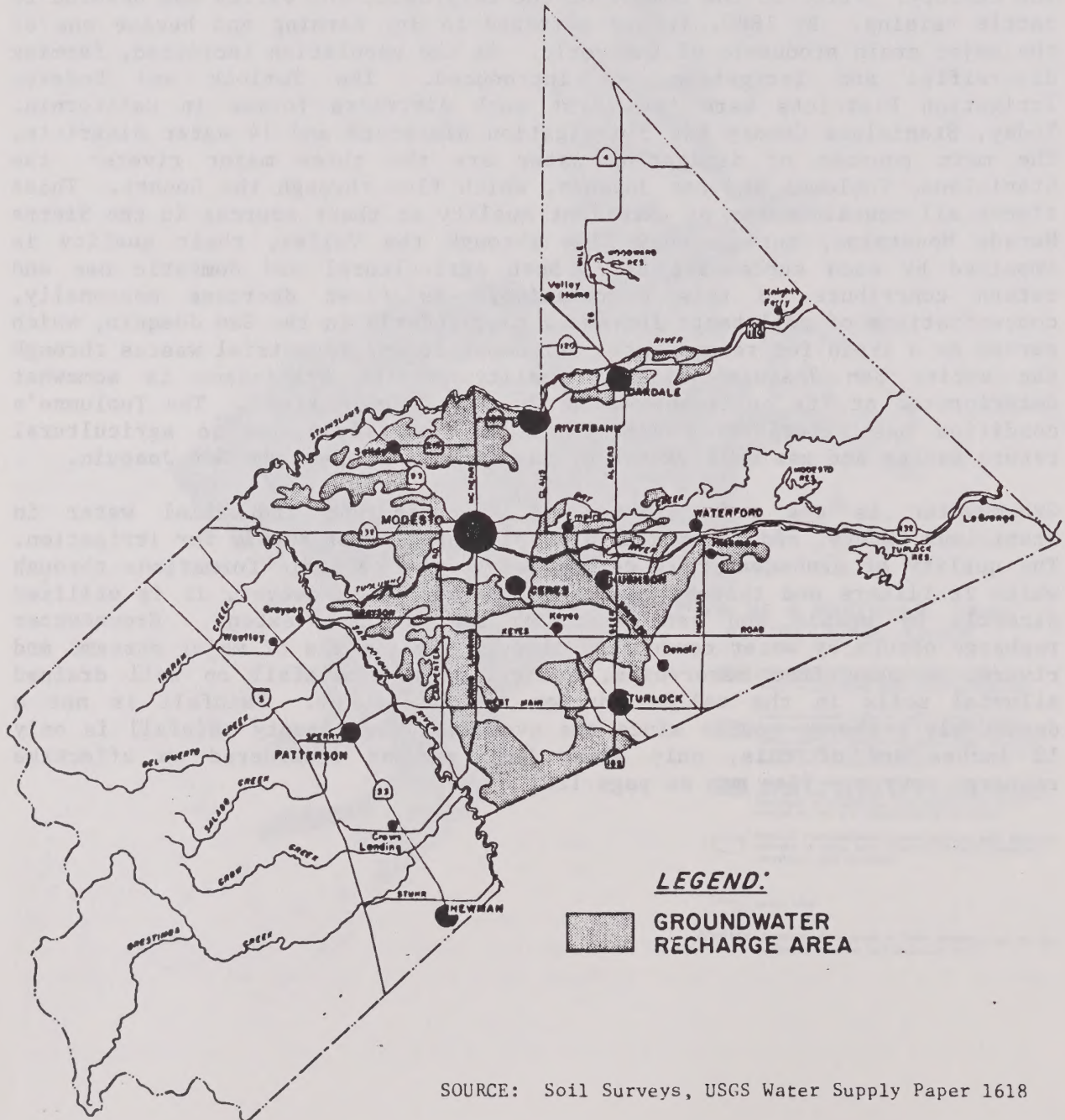
Another concern to farmers resulting from wind erosion is the damage caused by abrasion. Flying soil particles do considerable damage. Plants seldom suffer permanent damage solely from the flogging action of high winds, but severe damage is done, especially to younger plants, when the erosive wind carries abrasive soil material. Damage ranging from delayed growth and reduced yield to actual death has been inflicted on several types of crops.

WATER RESOURCES

Water is one of our most valuable natural resources. It is necessary to sustain human life and to produce a diversity of agricultural crops. Agricultural and urban water supplies for Stanislaus County originates from both ground water and surface water. Irrigation of agricultural land is the largest consumptive use of water in the County. Extensive energy efficient, gravity flow irrigation systems have been developed mainly since the turn of the century. Prior to the coming of the railroads, the valley was devoted to cattle raising. By 1880, it had switched to dry farming and became one of the major grain producers of the world. As the population increased, farming diversified and irrigation was introduced. The Turlock and Modesto Irrigation Districts were the first such districts formed in California. Today, Stanislaus County has 5 irrigation districts and 14 water districts. The main sources of irrigation water are the three major rivers: the Stanislaus, Tuolumne and San Joaquin, which flow through the County. These rivers all contain water of excellent quality at their sources in the Sierra Nevada Mountains, but as they flow through the Valley, their quality is impaired by each successive use. Both agricultural and domestic use and return contribute to this degradation. As flows decrease seasonally, concentrations of pollutants increase, particularly in the San Joaquin, which serves as a drain for return water and domestic and industrial wastes through the entire San Joaquin Valley. Quality of the Stanislaus is somewhat deteriorated at its confluence with the San Joaquin River. The Tuolumne's condition has deteriorated more than the Stanislaus due to agricultural return wastes and gas well wastes by the time it reaches the San Joaquin.

Groundwater is the major source of domestic and industrial water in Stanislaus County, and is used as a supplemental water supply for irrigation. The quality of groundwater is determined by the geologic formations through which it filters and thereby cannot be controlled. However, it is utilized directly by people and can be controlled to that extent. Groundwater recharge occurs by water conducting through the gravels of major streams and rivers, seepage from reservoirs, irrigation and rainfall on well drained alluvial soils in the valley portion of the County. Rainfall is not a dependable recharge source since the average annual county rainfall is only 12 inches and of this, only about half can be considered an effective recharge source. (See map on page 110)

GROUNDWATER RECHARGE AREAS



SOURCE: Soil Surveys, USGS Water Supply Paper 1618

The groundwater situation west of the San Joaquin River is substantially different from the rest of the County to the east. There are three major problems which exist: a rising perched water table, saline build-up in the soil and an increasing imbalance in the groundwater body. These conditions exist through combinations of canal seepage, excessive irrigation and poor quality irrigation waters. The cumulative effect of these problems can reduce crop yield and soil productivity. Where the water table has risen to within six feet of the surface, crop types have been changed from highly profitable row and tree crops to less profitable field crops. The major effects of a shallow water table are an increase in salt toxicity, the drowning of crops with deep root systems (such as orchards), and plant disease such as fungi, root rot and crop scalding. In attempting to reduce the salt imbalance, excessive amounts of water have been put in the soil, causing serious drainage problems. With the water perched so near the surface, this excessive irrigation water has nowhere to go. The water table has continued to rise, increasing the soil salinity through upward movement of the saline waters and deposition of salts in the surface layers of the soil as evaporation occurs. To combat this problem tile drains, which release return waters to the San Joaquin River, have been installed in some areas.

The decreasing groundwater quality is having adverse effects on domestic water supplies as well as the agricultural lands. As groundwater becomes unacceptable for domestic use, other sources will have to be found. One solution that has been suggested is the use of water from the Delta Mendota Canal for agricultural purposes.

The San Joaquin River carries substantial amounts of agricultural return flows which degrade the water quality. It is more severe here than in other rivers due to very low summer water flows. Agricultural runoff contributes up to fifty percent of the summer flow of the San Joaquin River. This runoff contains sediments, pesticides, salts, and nutrients.

Several methods have been identified to help control various types of ground water and surface water contamination. There is no definitive list of "best management practices." Each problem is site-specific, and each farming area and operation is unique, requiring its own methods of controlling water pollution. Individual farmers will need to determine which farm practice, if any, is appropriate in their problem situations. The practices outlined below have worked successfully on many farms, but individuals must use their judgement in determining which methods are best for them.

It is recognized that many farms throughout the San Joaquin River basin utilize a large number of the practices outlined below. However, in some locations there is an opportunity and a need to promote better adoption of the practices listed below.

1. Sediment in Surface Water

Some practices which reduce soil erosion help to prevent soil particles from becoming sediment by protecting the soil from the eroding action of water.

- (a) Use of cover crops in vineyards and orchards.
- (b) Keep erosion-prone soils in permanent cover, especially along waterways to prevent bank erosion and siltation.
- (c) Use proper grazing management.

- (d) Use no-till and low-till practices.
- (e) Use crop planting and land grading plans designed to minimize erosion.
- (f) Match irrigation method to soil and topographic conditions; avoid runoff.
- (g) Construct in-channel structures to reduce runoff velocities.
- (h) Use tailwater recovery systems.
- (i) Construct sediment detention ponds. These are very effective when coupled with tailwater recovery systems.

2. Pesticides in Surface Water

Some pesticides are persistent and adhere to soil particles for many years. Fields once sprayed with persistent toxic chemicals pose a potential threat to nearby aquatic life long after application.

- (a) Implement the erosion and sediment control practices suggested previously.
- (b) Avoid irrigation tailwater runoff during application of pesticides.
- (c) Follow pesticide label directions and county Agricultural Commissioner's permit requirements.
- (d) Use the least toxic, least persistent chemicals.

3. Pesticides in Ground Water

Pesticides have occasionally been introduced into ground water accidentally through poorly designed or poorly maintained well and irrigation systems.

- (a) Install approved back-flow prevention devices or air gaps between water source and irrigation system.
- (b) Properly seal new wells.
- (c) Follow guidelines for safe pesticide handling and storage.
- (d) Follow an integrated pest management approach to pest control.
- (e) Store, mix, and dispose of pesticides safely.
- (f) When applying chemicals to sandy soils, choose an effective material with the lowest potential to move in the soil.

4. Nitrates in Surface Water

Although much agricultural nitrogen reaching the San Joaquin River is from tile drainage, surface runoff can also be important.

- (a) If fertilizers are applied in the irrigation water, use a tailwater recovery system.

5. Nitrates in Ground Water

Balancing crop nitrogen needs with grower supplied nitrogen and other sources makes sense economically and environmentally.

- (a) Fertilize according to crop requirements.
- (b) Use plant tissue and/or soil tests.
- (c) Apply manures at rates comparable with crop nitrogen requirements.
- (d) Evaluate all sources of nitrogen available to the crop. Include manure, cannery wastes, crop residues, nitrates in irrigation supply.
- (e) Install approved back-flow prevention devices on wells.

6. Salinity in Surface and Ground Water

This is a complex problem and its solutions demand coordinated action at farm, district, and river basin (regional) levels. Proposals for a valley drain are being actively pursued as part of a basin-wide solution.

On-farm management consists of:

- (a) "Good irrigation management", which describes irrigation systems capable of supplying uniform, precise volumes of water to a crop at high efficiency and in an economically realistic manner.
- (b) Installation of buried drainage networks to maintain water tables below the root-zone (in areas of perched saline water tables).

District drain water management consists of:

- (a) Installation of properly engineered and maintained systems to collect and transport drain water produced by on-farm systems. Disposal requires identification and utilization of salt sinks.

Regional drain water management would include:

- (a) Identification of possible additional uses for drain water.
- (b) Conveyance of drain water to a salt sink or place of further use.
- (c) Reduction of import of salts in irrigation water supplies.
- (d) Use of dilution water where available (New Melones).
- (e) Establishment of recharge areas and utilization of winter runoff for recharge of ground water.

Water is truly the most valuable resource to everyone in Stanislaus County. It is needed for the survival of all living things, human beings, plants, and animals. Every effort should be made to insure good quality water before it becomes cost prohibitive.

The groundwater east of the San Joaquin River does not have the serious problems that exist on the west side. Depth of the water table varies from only a few feet around Turlock to several hundred feet. The overall quality of groundwater is good, although some chemicals are present in varying amounts that might eventually cause some problems. These are chloride, nitrate, arsenic, sodium, calcium, magnesium, carbonate, DBCP, bicarbonate, and sulfate. Groundwater pumping around Modesto, improperly sealed wells, and past dairying practices have contributed to increasing concentrations of certain chemicals.

Around Modesto the overall groundwater supply appears good, except in the extreme eastern portion. Extensive pumping coupled with insufficient recharge (due to continued covering of recharge areas with impervious surfaces) has created a cone of depression in the Modesto area water table. Urbanization of agricultural lands surrounding Modesto (which are also prime water recharge areas) will likely cause this cone of depression to continue to increase in size. Aside from lowering the amount of water available, this cone of depression has also caused an increase in the chloride levels of the groundwater according to a study by the U.S. Geological Survey.

Another recent issue facing California is the water shortage problem in Southern California. The problem is simple. The heavily populated areas of Southern California need additional water. The solution is the subject of a heated political debate which pits Northern California politicians, who have the water, against southland politicians who have the votes. Stanislaus County has been targeted by a recent Assembly Office of Research study titled "Water Trading, Free Market Benefits for Exporters and Importers", which erroneously states that we have a surplus of water and that this water should be made available to water users to the south. The report also suggests that our local farm land should be idled, thereby increasing the surplus. Little consideration has been given to what the impact of that water transfer might be on our local economy.

The Stanislaus County business community relies heavily on agriculture. Without agriculture, the canneries, the wineries, the poultry and creamery operations and the nut producers which employ thousands of workers, would soon disappear.

Many Southern California water interests are trying to capitalize on the current economic agricultural recession by exploiting the concept of water trading as a quick fix to satisfy the mounting debts of the farming community.

Stanislaus County must carefully conserve one of its most valuable natural resources. For, without water, this county along with many other agricultural counties in California, would cease to be major food producers in the United States and the world.

D. Mineral Resources

Stanislaus County is not prolific in its extractive resources. Some magnesite has been produced commercially, and attempts have been made to market a variety of manganese minerals found in the western portion of the county. Sand and gravel deposits presently constitute the only significant extractive resource from a commercial viewpoint. Numerous exploratory oil and gas wells have been drilled within the County. Although none of the wells are producing commercially, the underlying geological structure of the County indicates oil or gas may be present which could lead to the likelihood of more exploration.

Minerals found in Stanislaus County include: bementite, braunite, chromite, cinnabar, garnet, gypsum, hausmannite, hydromagnesite, inesite, magnesite, psilomelane, pyrobrsite, and rhodochrosite. Small deposits of gold, clay and lead are also known to exist. However, present economic conditions make commercial extraction of these minerals difficult or impossible.

The majority of sand and gravel deposits are a result of stream deposition or dredge tailings. The most significant deposits from a commercial outlook are found in old stream beds and adjacent to the rivers and streams in the eastern portions of the County. The only significant sand and gravel deposits on the westside are found along Orestimba Creek east of I-5 and fine grained sand deposits adjacent to the San Joaquin River. (See map on page 115)

The map displays the Riverbank area with various towns and roads. Sand and gravel resources are indicated by shaded regions along the Riverbank River and in the northern part of the area. Clay pits are marked with solid black rectangles. Key locations include Riverbank, Gardale, Waterford, and Turlock. Roads are labeled with numbers like 104, 106, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200.

LEGEND:

- SAND AND GRAVEL RESOURCES
- CLAY PIT

- 115-

Market demand, competition, excavation expenses, material quantity and quality all affect the costs of sand and gravel. However, transportation costs are a major factor affecting the siting of sand and gravel extraction and processing facilities. Sand and gravel excavations need to be near their market. This need to be within close proximity to the market area points toward the general incompatibility of gravel extraction and processing within urban areas, due to excessive noise, dust, and heavy truck traffic.

According to the State of California Division of Mines and Geology, the majority of Stanislaus County's sand and gravel deposits are situated beneath prime agricultural soils and riparian areas. Prior to 1975, excavations have taken place on these lands with little consideration given to eventual rehabilitation, consequently resulting in the loss of the land for agricultural uses and wildlife habitats. Since then, any excavation and rehabilitation must comply with the Surface Mining and Reclamation Act of 1975, which is reproduced in the appendix of this element. Any sand and gravel excavations and rehabilitations are regulated through the use permit procedure or other similar review processes utilizing the guidelines set forth by the Surface Mining and Reclamation Act of 1975, to minimize undesirable impacts.

E. Fish & Wildlife Inventory

Numerous species of plant and animal life are found in Stanislaus County which have aesthetic, recreational, economic, scientific or educational value to the citizens of the area. Preservation and regulation of the widest possible varieties of this wildlife is necessary if a balance of nature is to be maintained.

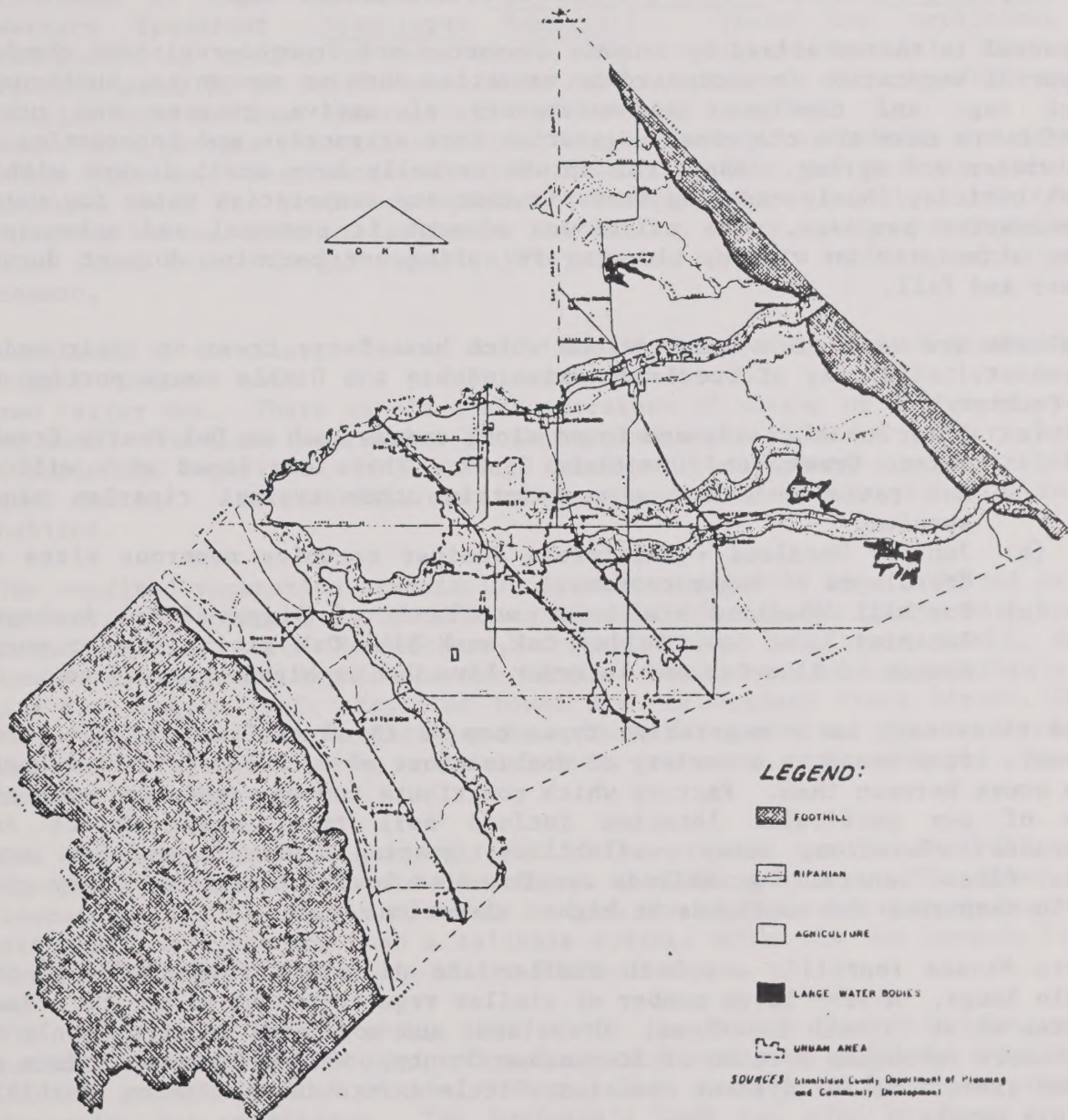
Four basic wildlife habitat types can be found in Stanislaus County. These are foothills (eastern and western borders of the county), agricultural land (throughout the county on the valley floor), riparian ecosystems (along the margins of permanent watercourses) and wetlands (marshes, sloughs, reservoirs, and sewer ponds). (See map on page 117)

1. The Foothills

There are two distinct areas of rolling foothills in Stanislaus County: the innermost ranges of the Diablo Range (Coast Ranges), located essentially west of Interstate 5 and rising upwards to the Stanislaus/Santa Clara Counties border and the foothills of the Sierra Nevada which extend somewhat into eastern Stanislaus County providing natural variation from the neighboring grasslands and agricultural areas. The Diablo Range foothills within the County contain approximately 28% of the total County land area. The Sierra Nevada foothills within the County comprise approximately 5% of the total County land area.

Many vegetation associations occur in the foothills of the County. While Diablo Range and Sierra Nevada foothill vegetation are similar in many respects, there are clear differences between them as well. In the Diablo Range, most vegetation falls into grassland, chaparral or woodland categories where as in the Sierra Nevada foothills, chaparral vegetation is nearly non-existent.

HABITAT TYPES



Grasslands are found commonly throughout the foothill areas of the County, but they are predominantly comprised of introduced (non-native) annual grasses. Some native grasses (both annual and perennial) are found at scattered locations within the County, but the grassland element of the County is clearly of the California Annual Grassland community, dominated by such introduced grass species as bromes, wild oats, fox-tail barley, and introduced forbes such as filaree, wild mustard, wild radish, vetch, clovers and others. Native grasses appear to survive best in narrow canyons, on steep slopes or in rarely visited areas. Cattle grazing has clearly been the most negative influence on the success of native grasslands.

Chaparral is characterized by densely compacted and drought-resistant shrubs. Chaparral vegetation is dominated by varieties such as manzanita, buckbrush, black sage and chamise. An understory of native grasses and other wildflowers make the chaparral vegetation zone attractive and interesting in the winter and spring. Chaparral shrubs normally have small leaves with a thick cuticle, thusly reducing transpiration and evaporation rates for water conservation purposes. The wildflower element is seasonal and ephemeral, being stimulated in winter, blooming in spring and becoming dormant during summer and fall.

Woodlands are vegetation associations which have large trees as their major component. A variety of woodlands exist within the Diablo Range portion of the County:

- (a) Riparian Woodlands are found along creeks such as Del Puerto Creek, Salado Creek, and Orestimba Creek. These are lined with willows and cottonwoods and also maintain other typical riparian plant species.
- (b) Juniper Woodland - California Juniper occupies numerous sites on dry slopes of inner canyons.
- (c) Foothill Woodland are lower woodlands of Digger Pine, Buckeye, Interior Live Oak, Valley Oak and Blue Oak giving way to purer stands of Blue Oak and Interior Live Oak at higher elevations.

These three very basic vegetation types can be found as discrete units, but are more often found in a variety of combinations of each other, with transition zones between them. Factors which contribute to the vegetation composition of any particular location include soil type, slope aspect and steepness, elevation, water availability, grazing intensity and (in some cases) fire. Generally grasslands are found at lower elevations. They give way to chaparral and woodlands at higher elevations.

Sierra Nevada foothills are both similar and different than those of the Diablo Range. A very large number of similar vegetation and plant and animal species exist in both locations. Grasslands and woodlands exist commonly in the Sierra foothills portion of Stanislaus County. While chaparral exists at higher elevations in adjacent counties, little exists in the Sierra foothills of this county.

Grasslands exist extensively, again with a preponderance of introduced (alien) grass species (oats, bromes, fox-tails) as well as other introduced non-grass herbs. No area of extensive native grasslands has been identified in this region of the county, even though numerous native grasses grow, interspersed within the non-natives. Numerous rare plants have been identified as growing in the Stanislaus County Sierra Nevada Foothills.

Vernal pools, historically known as "hog wallows" are shallow depressions in the grassland topography. They hold water intermittently or seasonally because of their impermeable substrates. Water collects in them from winter rainfall and persists into the spring. Such vernal pools provide interesting habitat for plants, invertebrates and vertebrates. More than 100 California wildflowers have been identified that grow almost exclusively within such vernal pools or similar, temporarily wet habitats.

In addition to these plants, these pools are also home for hundreds of thousands of Tiger Salamander (Ambystoma tigrinum ssp. californicum) and Western Spadefoot (Scaphiopus hammondi). These two amphibians are considered as species of concern by many biologists as their habitat is reduced annually in California. Many other vertebrate and waterfowl species utilize this enormous intermittent pool complex annually.

Grasslands provide productive habitat for hundreds of vertebrate and invertebrate species. Grasshoppers, other insects, birds and rodents provide a consumer base for predatory species. Grasslands are excellent habitat for numerous buteos, falcons, accipters and eagles. Many species of reptiles are also found here. Larger mammals like coyote, skunks, rabbits and hares are common.

Woodlands of the Sierra Nevada foothills of this county are of predominantly Digger Pine and oaks. The predominate oaks are Blue Oak, Interior Live Oak and Valley Oak. There is often an understory of shrubs of different species as well. Woodland vegetation is designated as a critical primary habitat (California Department of Fish and Game) as it supports a wide variety of game species. Additionally, many other non-game vertebrates flourish in this habitat.

The woodland vegetation association is also designated as a critical primary habitat. It supports a wide variety of wildlife. A few common bird species found are the Acorn Woodpeckers, common crows, California Quail, doves, hawks, and eagles. Amphibians are fairly common, such as the California Newt and the Western Toad. Reptiles found are the Western Fence Lizard, Common King Snake and Western Rattlesnake. Mammals common to the woodland area include bats, Gray Foxes, coyotes, deer, raccoons, and rodents. Numerous insects are also present.

Two endangered species are believed to be present in the foothill areas, according to the California Department of Fish and Game. The Blunt Nosed Leopard Lizard is thought to exist in both the eastern and western foothills, although there has not been a reliable siting, while the San Joaquin Kit Fox apparently inhabits portions of the Diablo Range.

The Del Puerto Canyon area, located in the Diablo Range in the western portion of Stanislaus County, plays host to a number of wildlife species. It is the nesting ground of the common falcon and there have been numerous Peregrine Falcon sitings. The Swainson's Hawk can also be found in this area. A very diverse reptile fauna, including various species of snakes and lizards, can be found in these western mountains.

Chaparral vegetation provides habitat for many small animal species such as wood rats, gophers, skunks, rabbits, foxes and numerous snakes and lizards.

Common bird species found in the chaparral include the Wrentit, California Thrasher and California Quail. Chaparral vegetation has been designated by the Department of Fish and Game as a critical primary habitat due to the presence of the Columbian Black Tailed Deer.

The State Department of Fish and Game, supported by Federal Aid in Wildlife Restoration, contracted to generate a list of bird species of special concern in California (See Table 3-5 on page 121). The List of bird species included those California breeding populations (in most cases) that are of special concern in that they may face extirpation. The danger may be immediate and the situation critical, or it may be rather remote, but still a real possibility. The list is intended for use as a management tool. These species should be taken into special consideration when decisions are made concerning the future of any land parcel. The Stanislaus Audubon Society monitors the bird populations of the County on a regular basis, and has identified two critical and threatened areas: La Grange Dam Road and Del Puerto Canyon area.

La Grange Dam Road, located east of La Grange, near the county line, features a small strip of foothill-reparian habitat which serves as a habitat for the threatened Yellow-breasted Chat. This bird is on the blue list, a list of birds considered threatened nationwide. According to the Stanislaus Audubon Society, La Grange Dam Road is the only stronghold for this species in Stanislaus County.

Another threatened species of special concern found in the La Grange Dam Road area is the Cooper's Hawk. A nest was found in an oak tree in early spring, 1986, and four young fledged from this nest in late June.

Del Puerto Canyon has long been reknowned for harboring several bird species at the northernmost limit of their range in California, including the Costa's Hummingbird and the Cassin's Kingbird. A Costa's Hummingbird's nest was found in Del Puerto Canyon in the spring of 1986. The presence of these birds has long been a magnet for nature lovers. Every year, the Bay Area's Golden Gate Audubon Society conducts a spring field trip to Del Puerto Canyon to view birds seldom seen anywhere else in northern California.

Several resident species that are found in Del Puerto Canyon include the Golden Eagle, Prairie Falcon and Yellow-breasted Chat. The Greater Roadrunner is not listed as a species of special concern, but the study does note that "numbers have definately declined in parts of northern California."

Aside from the species of special concern that reside in the canyon, there are many other species there that are rarely seen anywhere else in Stanislaus County, including the Common Raven, Canyon Wren, Rufous-crowned Sparrow, Lawrence's Goldfinch, Sage Sparrow and Grasshopper Sparrow. A list of birds that have been identified in Stanislaus County can be found in Table 3-6 on page 122.

The National Audubon Society purchased the 780-acre Christman Island in December, 1986, for a wildlife refuge. It will be the nucleus of a new national wildlife refuge, the first in Stanislaus County. The island was a part of the Mapes Ranch and is located on the floodplain adjacent to the San Joaquin River near its confluence with the Tuolumne River, west of Modesto. The island provides important wetlands for the migrating birds of the Pacific Flyway.

CALIFORNIA DEPARTMENT OF FISH AND GAME

BIRD SPECIES OF SPECIAL CONCERN LIST ^{1/}

HIGHEST PRIORITY^{2/}

Common Loon
*White Pelican
*White-faced Ibis
*Fulvous Whistling-Duck
*Arizona Bell's Vireo
*Harris' Hawk
*Merlin
Sharp-tailed Grouse
Yellow Rail
Laughing Gull
Gilded Common Flicker
Willow Flycatcher
Vermilion Flycatcher

SECOND PRIORITY

Fork-tailed Storm-Petrel
*Double-crested Cormorant
*Marsh Hawk
*Osprey
*Snowy Plover
*Gull-billed Tern
Tufted Puffin
*Burrowing Owl
Spotted Owl
Long-eared Owl
*Short-eared Owl
Gila Woodpecker
Bank Swallow
*Purple Martin
Black-tailed Gnatcatcher
Gray Vireo
*Yellow Warbler
*Yellow-breasted Chat
Summer Tanager

THIRD PRIORITY

Black Storm-Petrel
Ashy Storm-Petrel
Least Bittern
Barrow's Goldeneye
Harlequin Duck
Goshawk
*Sharp-shinned Hawk
*Cooper's Hawk
Golden Eagle
*Prairie Falcon
Ruffed Grouse
*Sage Grouse
Sandhill Crane
California Gull
Elegant Tern
Black Skimmer
Marbled Murrelet
Rhinoceros Auklet
Black Swift
Wied's Crested Flycatcher
Black-capped Chickadee
Bendire's Thrasher
Le Conte's Thrasher
Crissal Thrasher
Virginia's Warbler
Hepatic Tanager
Cardinal
Gray-headed Junco

^{1/}This list, prepared for the Department of Fish and Game by J. V. Remsen, Jr. under a Department contract with Western Field Ornithologists, is intended for use as a management tool and for information; species of special concern have no special legal status. Many of the species on the list are common migrants through the State, and, for most species on the list, it is primarily the breeding population that is of special concern.

^{2/}Within each priority category, species are listed in taxonomic order, not in any order of priority.

*These species are also on "The Blue List for 1978" (Arbib 1977). The Blue List, published annually in American Birds since 1971, includes species showing signs of non-cyclical population declines or range contractions in North America.

Table 3 -6
BIRDS OF STANISLAUS COUNTY

GAUIFORMES	GALLIFORMES	APODIFORMES	
Common Loon	Ring-necked Pheasant	Vaux's Swift	Phainopepla
	Wild Turkey	White-throated Swift	Loggerhead Shrike
PODICIPEDIFORMES	California Quail	Black-chinned Hummingbird	European Starling
Pied-billed Grebe		Anna's Hummingbird	Solitary Vireo
Horned Grebe	GRUIFORMES	Costa's Hummingbird	Mutton's Vireo
Eared Grebe	Virginia Rail	Rufous Hummingbird	Warbling Vireo
Western Grebe	Sora	Allen's Hummingbird	Orange-crowned Warbler
Clark's Grebe	Common Moorhen		Nashville Warbler
	American Coot	CORACIIFORMES	Yellow Warbler
PELECANIFORMES	Sandhill Crane	Belted Kingfisher	Chestnut-sided Warbler
American White Pelican			Magnolia Warbler
Brown Pelican	CHARADRIIFORMES	PICIFORMES	Yellow-rumped Warbler
Double-crested Cormorant	Black-bellied Plover	Lewis Woodpecker	Black-throated Gray Warbler
	Lesser Golden-Plover	Acorn Woodpecker	Townsend's Warbler
CICONIIFORMES	Snowy Plover	Red-breasted Sapsucker	Hermit Warbler
American Bittern	Semipalmated Plover	Nuttall's Woodpecker	MacGillivray's Warbler
Least Bittern	Killdeer	Downy Woodpecker	Common Yellowthroat
Great Blue Heron	Black-necked Stilt	Hairy Woodpecker	Wilson's Warbler
Great Egret	American Avocet	Northern Flicker	Yellow-breasted Chat
Snowy Egret	Greater Yellowlegs		Western Tanager
Cattle Egret	Lesser Yellowlegs	PASSERIFORMES	Black-headed Grosbeak
Green-backed Heron	Willet	Olive-sided Flycatcher	Blue Grosbeak
Black-crowned Night Heron	Spotted Sandpiper	Western Wood-Pee-wee	Lazuli Bunting
White-faced Ibis	Whimbrel	Willow Flycatcher	Green-tailed Towhee
	Marbled Godwit	Western Flycatcher	Rufous-sided Towhee
ANSERIFORMES	Ruddy Turnstone	Black Phoebe	Brown Towhee
Fulvous Whistling-Duck	Sanderling	Say's Phoebe	Rufous-crowned Sparrow
Tundra Swan	Western Sandpiper	Ash-throated Flycatcher	Chipping Sparrow
Greater White-fronted Goose	Least Sandpiper	Cassin's Kingbird	Vesper Sparrow
Snow Goose	Baird's Sandpiper	Western Kingbird	Lark Sparrow
Ross' Goose	Pectoral Sandpiper	Horned Lark	Sage Sparrow
Emperor Goose	Dunlin	Purple Martin	Savannah Sparrow
Canada Goose	Stilt Sandpiper	Tree Swallow	Grasshopper Sparrow
Wood Duck	Short-billed Dowitcher	Violet-green Swallow	Fox Sparrow
Green-winged Teal	Long-billed Dowitcher	Northern Rough-winged Swallow	Song Sparrow
Mallard	Common Snipe	Bank Swallow	Lincoln's Sparrow
Northern Pintail	Wilson's Phalarope	Cliff Swallow	Swamp Sparrow
Blue-winged Teal	Red-necked Phalarope	Barn Swallow	White-throated Sparrow
Cinnamon Teal	Bonaparte's Gull	Stellar's Jay	Golden-crowned Sparrow
Northern Shoveler	Mew Gull	Scrub Jay	White-crowned Sparrow
Gadwall	Ring-billed Gull	Yellow-billed Magpie	Dark-eyed Junco
American Wigeon	California Gull	American Crow	Red-winged Blackbird
Canvasback	Herring Gull	Common Raven	Tricolored Blackbird
Redhead	Caspian Tern	Plain Titmouse	Western Meadowlark
Ring-necked Duck	Forster's Tern	Bushtit	Yellow-headed Blackbird
Greater Scaup	Black Tern	Red-breasted Nuthatch	Brewer's Blackbird
Lesser Scaup		White-breasted Nuthatch	Brown-headed Cowbird
Common Goldeneye	COLUMBIFORMES	Brown Creeper	Hooded Oriole
Bufflehead	Rock Dove	Rock Wren	Northern Oriole
Hooded Merganser	Band-tailed Pigeon	Canyon Wren	Purple Finch
Common Merganser	Mourning Dove	Bewick's Wren	House Finch
Ruddy Duck		House Wren	Pine Siskin
FALCONIFORMES	CUCULIFORMES	Winter Wren	Lesser Goldfinch
Turkey Vulture	Yellow-billed Cuckoo	Marsh Wren	Lawrence's Goldfinch
Osprey	Greater Roadrunner	American Dipper	American Goldfinch
Black-shouldered Kite		Golden-Crowned Kinglet	House Sparrow
Bald Eagle	STRIGIFORMES	Ruby Crowned Kinglet	
Northern Harrier	Common Barn-Owl	Blue-gray Gnatcatcher	
Sharp-shinned Hawk	Western Screech-Owl	Western Bluebird	
Cooper's Hawk	Great Horned Owl	Mountain Bluebird	
Red-shouldered Hawk	Burrowing Owl	Townsend's Solitaire	
Swainson's Hawk	Short-eared Owl	Swainson's Thrush	
Red-tailed Hawk	Northern Saw-whet Owl	Hermit Thrush	
Ferruginous Hawk		American Robin	
Rough-legged Hawk	CAPRIMULGIFORMES	Varied Thrush	
Golden Eagle	Lesser Nighthawk	Wren-tit	
American Kestrel	Common Poorwill	Northern Mockingbird	
Merlin		Sage Thrasher	
Peregrine Falcon		Brown Thrasher	
Prairie Falcon		California Thrasher	
		Water Pipit	
		Cedar Waxwing	

Christmas Island is the winter home for the Aleutian Canadian Goose, an endangered species and the sandhill crane, a threatened species. In the spring, the island's valley oaks harbor a nesting rookery of an estimated 250 pairs of great blue herons and great egrets. Double-crested cormorants and the rare Swainson's hawk have also been spotted on the island.

2. Agricultural Lands

The agricultural areas on the County's valley floor support a diversity and abundance of wildlife. They provide an intermittent habitat for a number of wildlife species. There are four basic agricultural crop types with each supporting various wildlife species.

Irrigated Pasture provides habitat for geese, Sandhill Cranes, Tundra Swans and pheasants. Many smaller birds and mammals, particularly rodents, are also found.

Vineyards provide habitat for quail, mourning doves, opossums, rabbits, rodents, passerine birds and pheasants. Vineyards are particularly important when they are adjacent to other habitat types. For example, when a vineyard is located next to a riparian area, wildlife within the riparian area will move into the vineyards for food and cover.

Row Crops provide habitat for pheasants, rabbits, rodents, doves and passerine birds. Row crops are particularly important during the winter months when species will move into them from other habitat types.

Orchards provide habitat for nesting doves, pheasants, passerine birds, quail, rabbits and rodents. Due to their longevity, orchards are becoming increasingly important to wildlife preservation.

3. Riparian Areas

Due to the extensive land clearance which has occurred in the past for agricultural and urban land uses, riparian vegetation is essentially restricted to the banks of the County's creeks and rivers. Riparian vegetation is very dense, usually consisting of Willows and Fremont Cottonwoods, Valley Oaks, California Sycamore, Box Elder, and Oregon Ash. Along Orestimba Creek at Interstate 5, a unique stand of California Sycamores can be found. This is the only place on the valley side of the Coast Range where the California Sycamore comes down to the valley floor. Thick undergrowth is composed primarily of shrubs such as Buttonbush, honeysuckle, elderberry and gooseberry. The smaller plants typically present include poison oak, nettle, mule fat, wild grape and long stemmed shade tolerant grasses.

The riparian vegetation shelters many wildlife species. An important factor contributing to the heavy use of riparian areas by wildlife is its frequent proximity to other habitats such as agricultural lands. The combination of the two habitats provide food and shelter for wildlife species. For this reason riparian habitat has been designated as a critical primary habitat by the State Department of Fish and Game. Thus, in terms of quality, it is the most important habitat in the County.

Location of wildlife within the riparian area is varied, with the greatest number of species found near the water areas. This, of course, includes the over 40 species of fish which inhabit Stanislaus County waterways. Fish tend to use the shade and tree root tangles from heavy streamside vegetation as feeding and shelter areas. Mollusks and crustaceans are also found.

Populations of largemouth and smallmouth bass, striped bass, channel and white catfish, American chad, black croppie, bluegill, green and white sturgeon, and rainbow and brown trout can be found. Rainbow and brown trout can be found around the Knights Ferry area in the deep, cool pools. Below Knights Ferry, where the river slows and the water is warmer, various types of bass, shad, catfish, bluegill and croppie can be found. To help protect the declining king (Chinook) salmon population which migrate up the Tuolumne and Stanislaus River to spawn, the rivers are closed to fishing east of the Highway 99 bridges through the County from October 1 to December 31 annually.

Among the birds which are known to inhabit the riparian area are large wading birds such as herons and egrets, raptors such as hawks, owls, and eagles, game birds, including quail, doves and pheasants, waterfowl migrating along the Pacific Flyway such as ducks, geese and swans and numerous song birds. The bald eagle, an endangered species, is found at numerous sites in Eastern Stanislaus County.

Mammals such as cottontails, rabbits, raccoons, skunks, beaver, foxes, opossum, squirrels and coyotes are all found in riparian areas. Deer are occasionally seen in small numbers along the rivers in the eastern portion of the County.

Various reptile, amphibian and insect species inhabit the riparian areas. The giant garter snake which is classified as a rare species, is believed to be present within some fresh water areas within the County.

The exact amount of riparian habitat which now exists in the County is unknown. Estimates from several years ago varied from seven to eight thousand acres. The amount of riparian habitat has diminished due to conversion to other land uses. One factor in the conversion process has been the implementation of various flood control projects, including the Corp of Engineers channel clearing project. Today, an estimated four to five thousand acres of riparian habitat exist in Stanislaus County.

4. Large Water Areas

The County's reservoirs and marshes provide substantial waterfowl and wildlife habitat. The lakes and reservoirs are relatively deep open areas with narrow borders of vegetation. Some of the marshes are seasonal in nature.

Wildlife associated with lakes include numerous bird species, a wide variety of fish and aquatic life, and various mammals, the number and type depends upon the amount of permanent vegetation which exists. Wetlands also support many bird and mammal species, depending on the size and permanence of the water. These areas are considered critical secondary type habitats by the State Department of Fish and Game.

A fourth significant wetland area is the sewer pond. These ponds attract numerous species of birds. So many, in fact, that the Stanislaus Audubon Society monitors these sites on a monthly basis. Locations of endangered or threatened wildlife species can be found on the map on page 126.

F. Rare and Endangered Plants

One of California's greatest natural resources is its rare plants. The state's mountain ranges and deserts and its unusual summer-dry climate set the stage for the development of a complex and fascinating flora. Almost 7000 types of plants are native here, more than we find in the entire northeastern United States and adjacent Canada, an area ten times larger than California.

One of the most notable features of the California flora is that about one-third of its native species are endemic, plants that are restricted to a particular locality or habitat within the state. The primary factor as to why California has so many rare and endemic plants may well be our climate, a regime of dry summers and cool, wet winters. Only in the Mediterranean Basin, Chile, and parts of Australia and South Africa do we find similar climates. Each is famous for its array of rare plants. A second factor is topography. Within the boundaries of this state are the extremes of low, subtropical desert to habitats above timberlines. A third factor is the richness of geological formations and the resulting diversity of soil types.

In 1977, as a result of the endeavors of many farsighted people, the California Native Plant Protection Act became law. The act directed the California Department of Fish and Game to carry out the legislature's intent to "preserve, protect, and enhance endangered plants of this state". This act empowered the Fish and Game Commission to designate native plants as endangered or rare or to require permits for collecting, transporting, or selling such plants.

The definitions of "endangered" and "rare" are found within the legislation itself (Section 1900, Chapter 10 of the Fish and Game Code.):

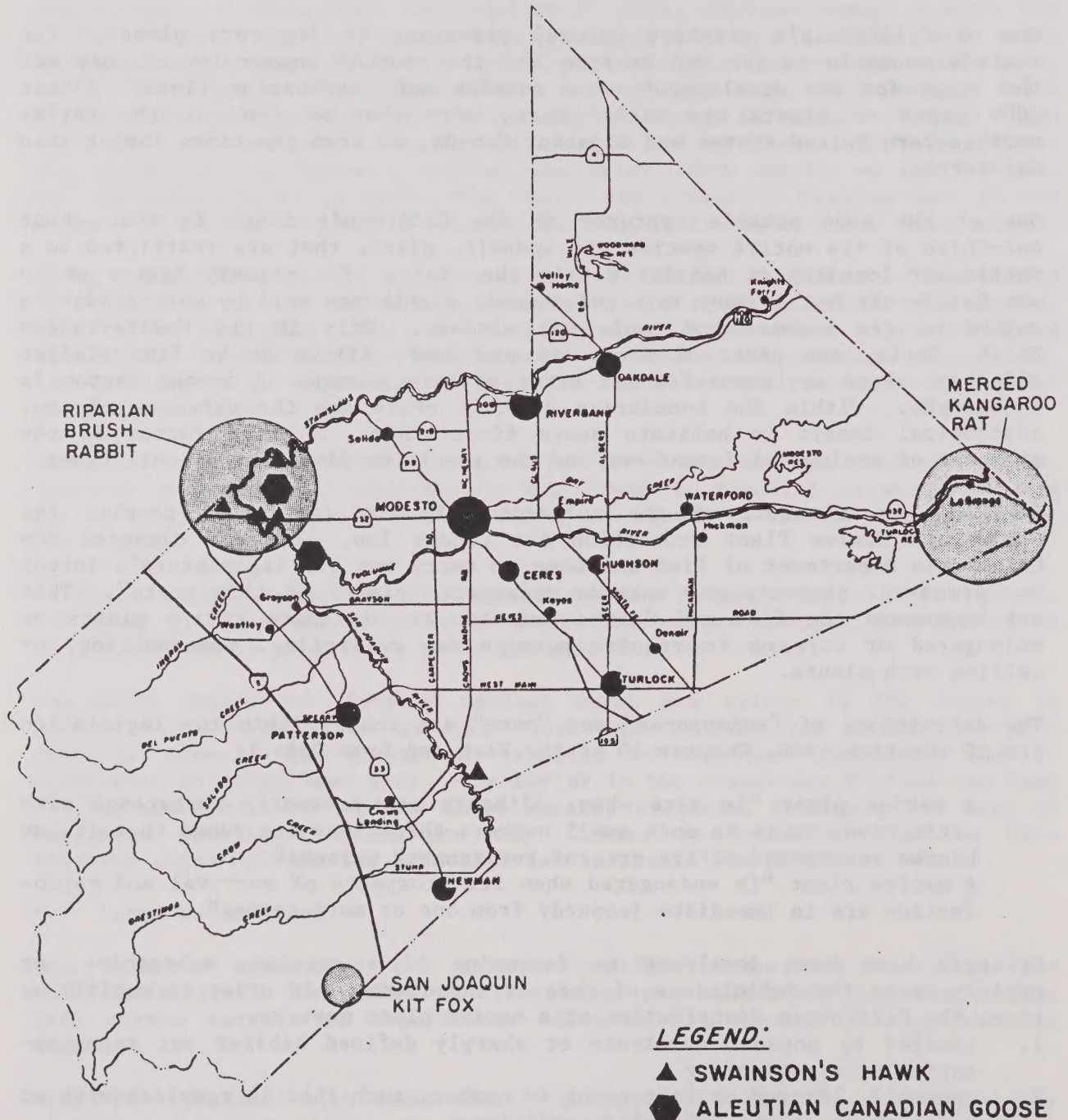
A native plant "is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens".

A native plant "is endangered when its prospects of survival and reproduction are in immediate jeopardy from one or more causes".

Criteria have been developed to determine if a species, subspecies, or variety meets the definitions of rare or endangered. In order to qualify as rare, the California distribution of a native plant must be:

1. limited to unusual substrate or sharply defined habitat not representative of a region; or
2. generally limited or infrequent in number, such that it complies with at least three of the following conditions:
 - a. fewer than 20 definable populations
 - b. maximum inter-population distance of less than 100 km (68 mi)
 - c. most populations of fewer than 10,000 individuals
 - d. most populations less than 1 hectare (2.47 acres); or
3. limited in total area of occurrence to less than 5 hectares (about 12.4 acres); or
4. limited to one or two populations.

RARE AND ENDANGERED ANIMALS



In order to qualify as endangered, a native plant need satisfy only one of the following classes of jeopardy:

1. most populations undergoing imminent or active destruction of range or fundamental habitat; or
2. native plant reproductive strategy in danger of failure due to limited plant numbers or occurrences or loss of support organisms; or
3. low potential for effective coordination of land management due to fragmentation of ownership and land use regulatory-management authorities or occurrences on sites where adopted land use management plans and policies preclude its continued survival; or
4. subject to heavy collection pressure due to high horticultural, economic, aesthetic, commercial, or research value.

Using these criteria, the Endangered Plant Program carries out its most visible function--proposing plants to be listed by the California Fish and Game Commission. Proposals are developed based upon analysis of data by the Natural Diversity Data Base, input from the California Native Plant Society, and the opinions of other knowledgeable individuals and organizations. A proposal includes the species distribution, habitat requirements, population trends, and threats to its existence, as well as an analysis of the economic impact of listing.

The legal protection afforded listed plants under the Native Plant Protection Act involves provisions that prohibit the taking of plants from the wild and a salvage requirement for landowners. Once they have been notified of the presence of a listed species on their property, landowners are required to tell the Department of Fish and Game at least ten days in advance of any land use change. This allows for the salvaging of plants that would otherwise be destroyed.

The California Environmental Quality Act (CEQA), enacted in 1970, was designed to "ensure that the long-term protection of the environment shall be the guiding criterion in public decisions". CEQA also declares that "the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects".

The act is administratively implemented by guidelines prepared by the Office of Planning and Research. Referred to as "CEQA Guidelines", they are published in the California Administrative Code (Title 14, Sections 1500 et seq.).

In 1983, definitions for "rare" and "endangered" plants were added that parallel those used in the Native Plant Protection Act. Also included in the amendments to the CEQA guidelines is a clarification of how to treat plants that have not yet been state listed. "A plant or animal not included in any such listing shall nevertheless be considered to be rare or endangered if the plant or animal can be shown to meet the criteria...". This means that if a plant is rare or endangered by virtue of biology, distribution, or endangerment, then it must be addressed under CEQA guidelines as if it were state listed.

Special plants are species or subspecies that may fall into one or more of the following categories:

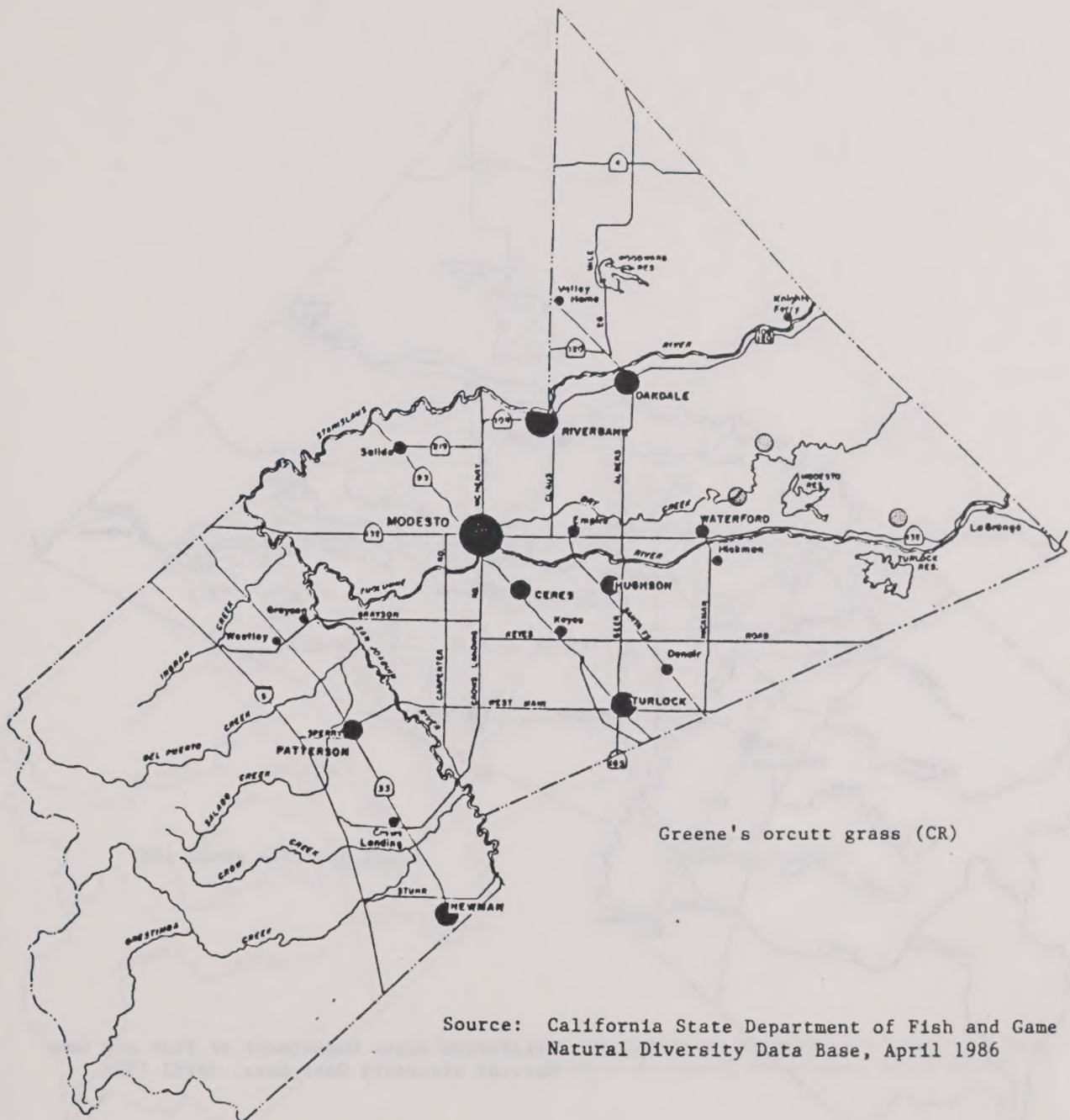
- * Officially listed by California or the Federal Government as Threatened, Endangered, or Rare;
- * Considered a Sensitive Species in California by the U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service;
- * Classifications that are biologically rare, very restricted in distribution, or thought to be declining throughout their range but not currently threatened with extirpation;
- * Population(s) in California peripheral to the major portion of a classification's range;
- * Classification's closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

The "special plants" identified and inventoried for Stanislaus County by the State of California Department of Fish and Game Natural Data Base study (April 26, 1986) are listed as follows:

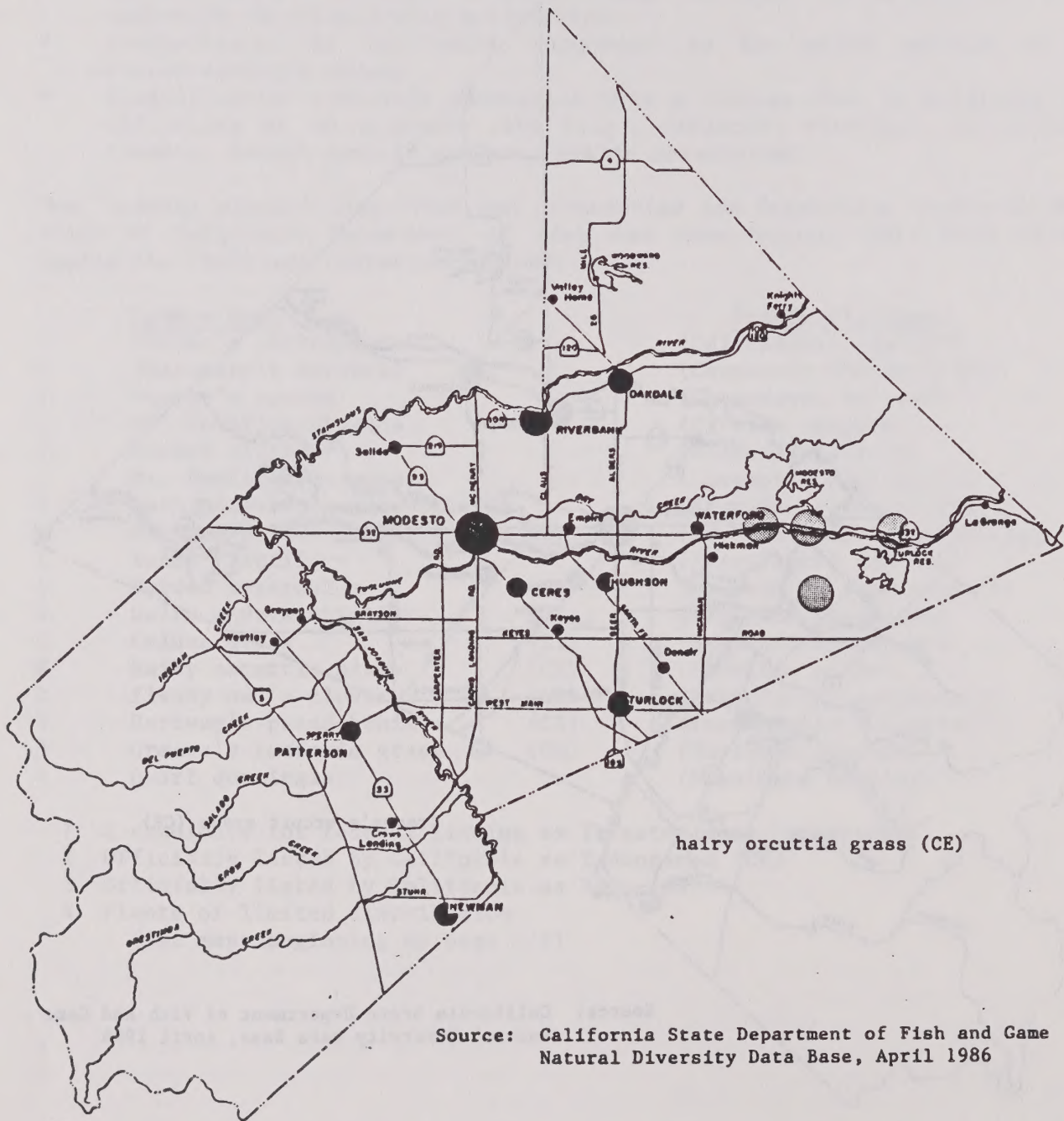
	<u>Common Name</u>		<u>Scientific Name</u>
1	Hoover's calycadenia		(Calycadenia hooveri)
1	Sharsmith's harebell		(Campanula sharsmithiae)
1	Hoover's spurge		(Chamaesyce hooveri)
1	Mt. Hamilton thistle		(Cirsium campylon)
1	beaked clarkia		(Clarkia rostrata)
1	Mt. Hamilton coreopsis		(Coreopsis hamiltonii)
1	spiny-sepaled coyote-thistle		(Eryngium spinosepalum)
1	diamond-petaled California poppy		(Eschscholzia rhombipetala)
1	talus fritillary		(Fritillaria falcata)
1	Merced monardella		(Monardella leucocephala)
2	Delta coyote thistle	(CE)	(Eryngium racemosum)
2	Colusa grass	(CE)	(Neostapfia colusana)
2	hairy orcuttia grass	(CE)	(Orcuttia pilosa)
2	fleshy owl's clover	(CE)	(Orthocarpus campestris)
2	Hartweg's pseudobahia	(CE)	(Pseudobahia bahiaefolia)
3	Greene's tuctoria grass	(CR)	(Tuctoria greenei)
4	Dwarf downingia		(Downingia humilis)

- 1 A candidate for federal listing as Threatened or Endangered
- 2 Officially listed by California as Endangered (CE)
- 3 Officially listed by California as Rare (CR)
- 4 Plants of limited distribution
(See maps beginning on page 129)

RARE AND ENDANGERED PLANTS



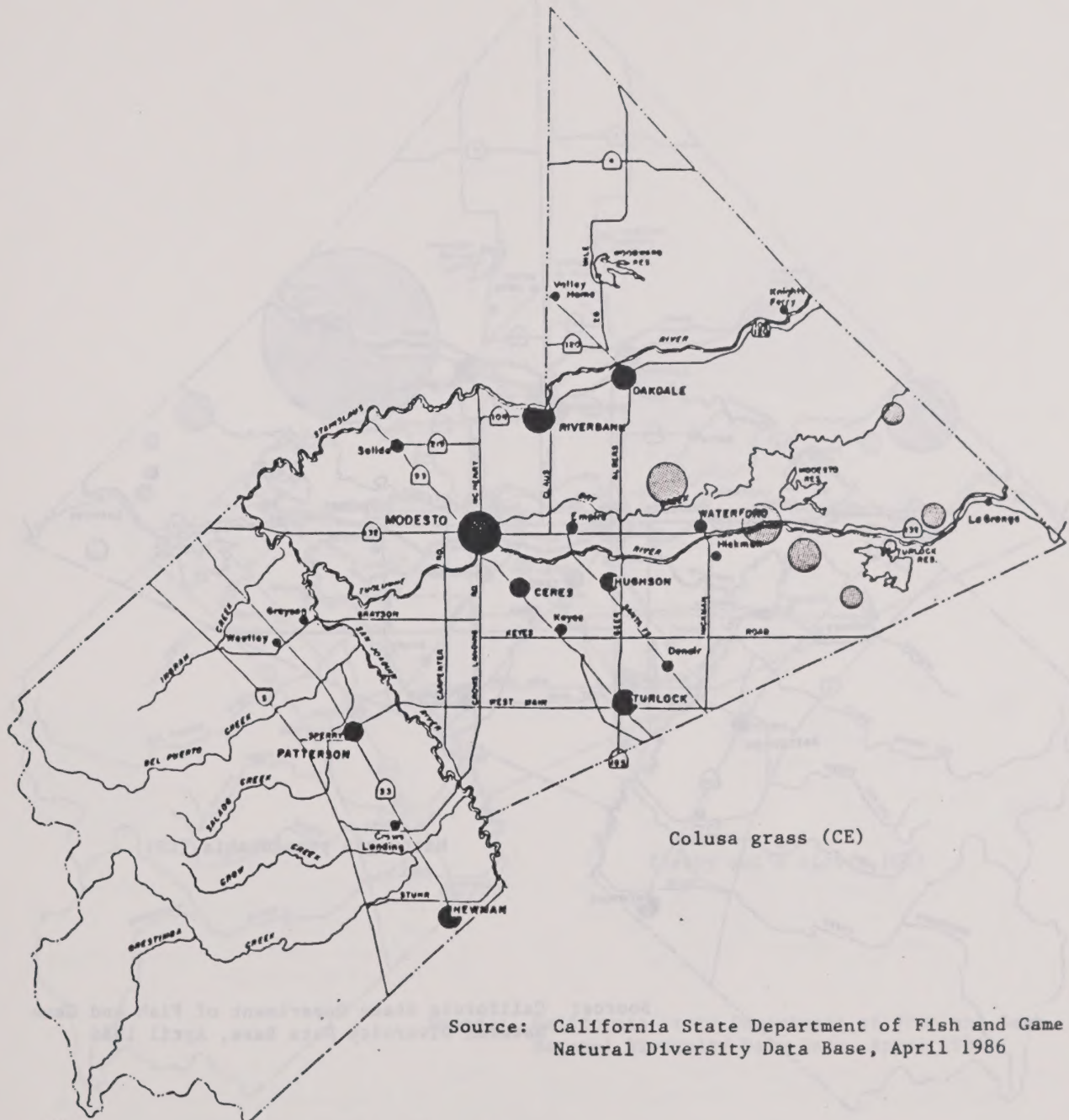
RARE AND ENDANGERED PLANTS



hairy orcuttia grass (CE)

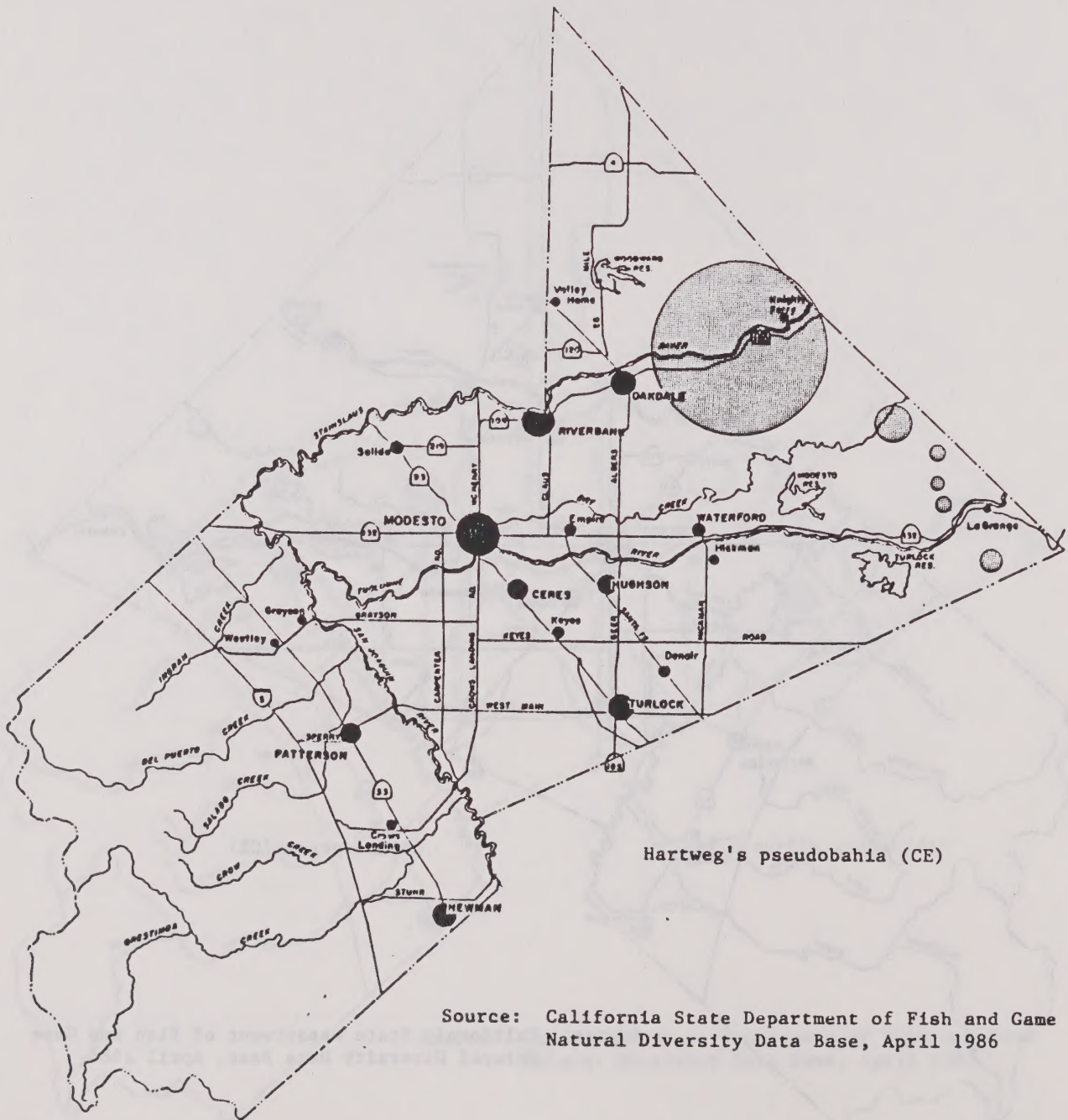
Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS



Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

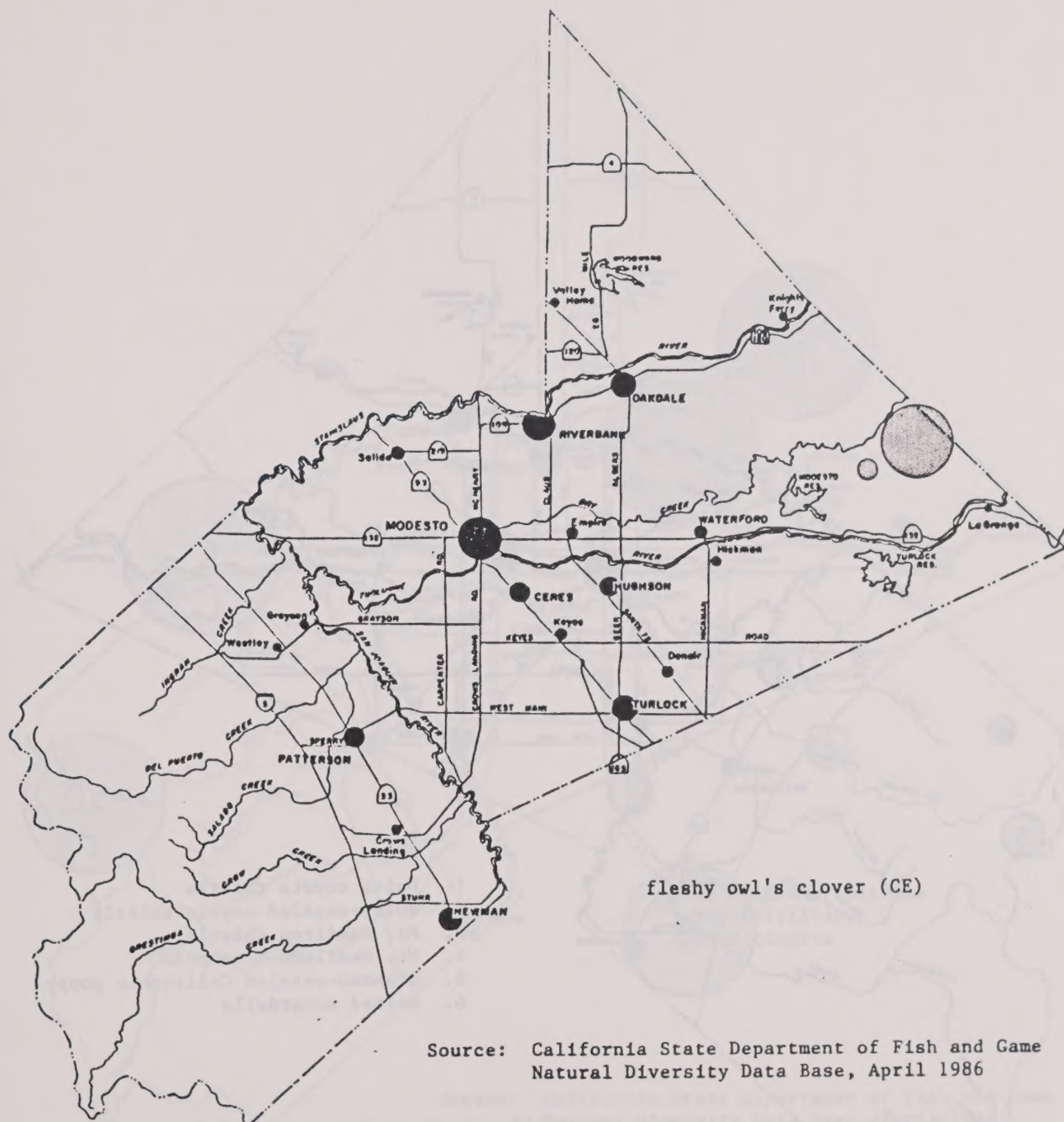
RARE AND ENDANGERED PLANTS



Hartweg's pseudobahia (CE)

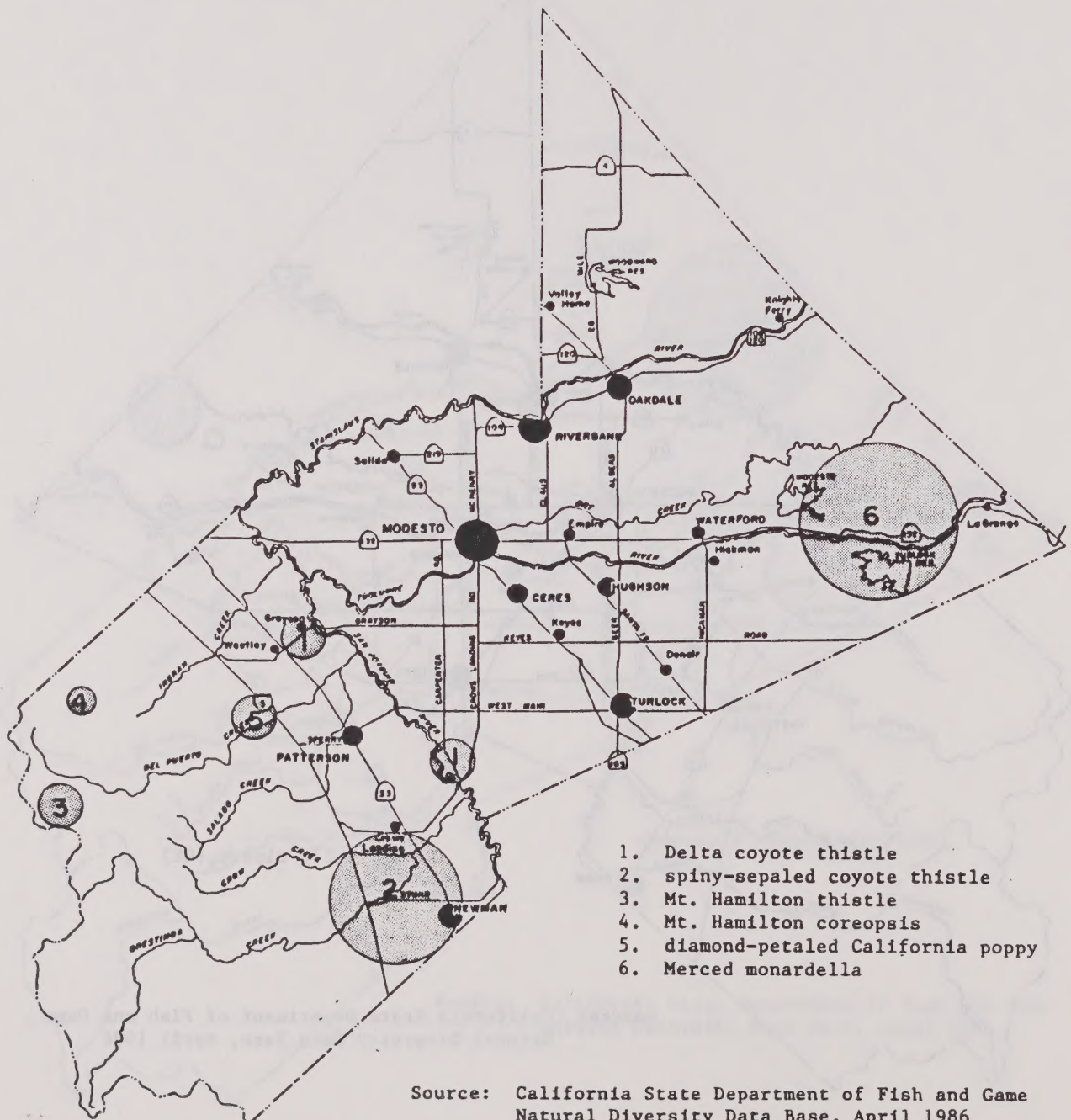
Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS



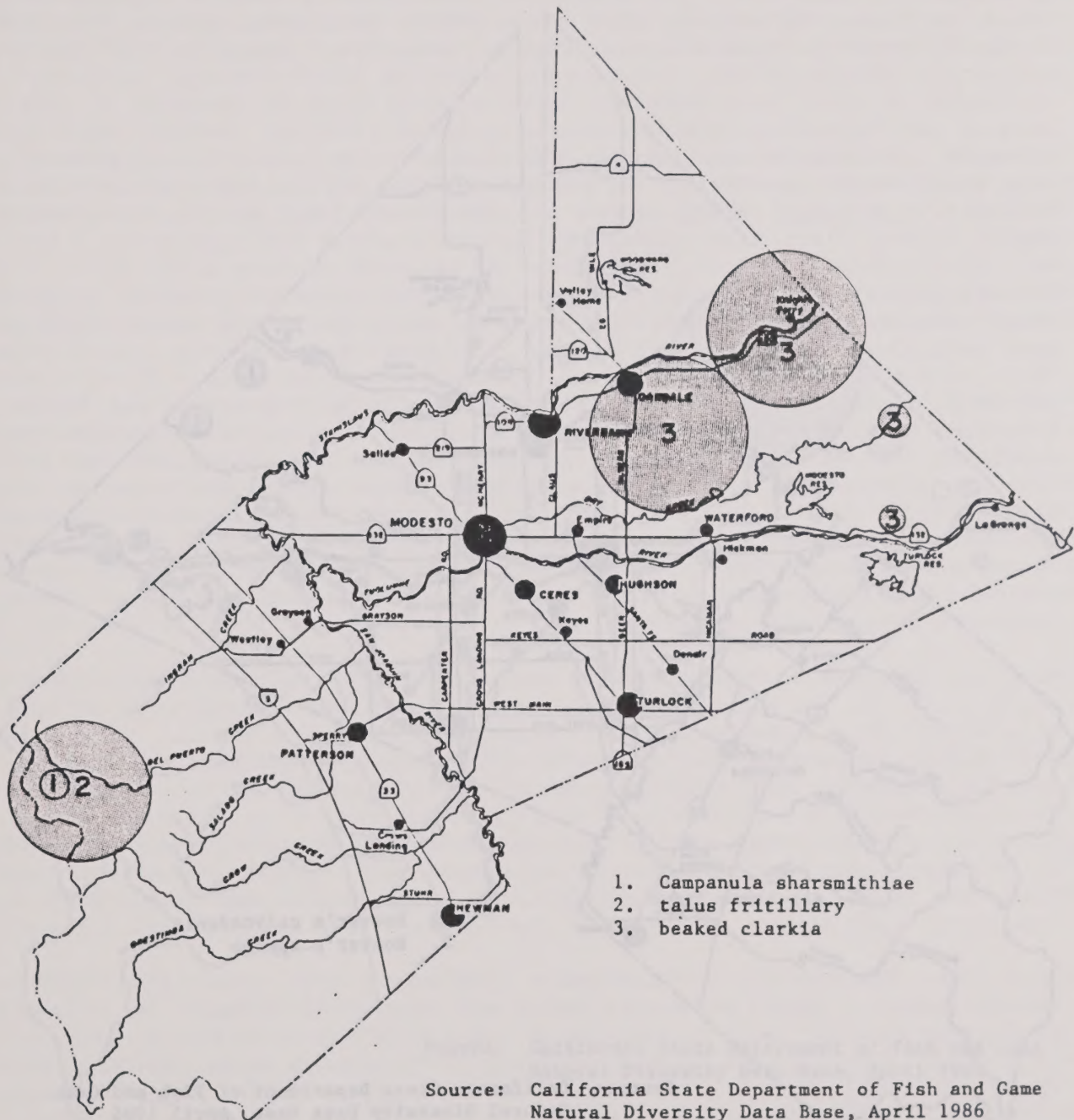
Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS

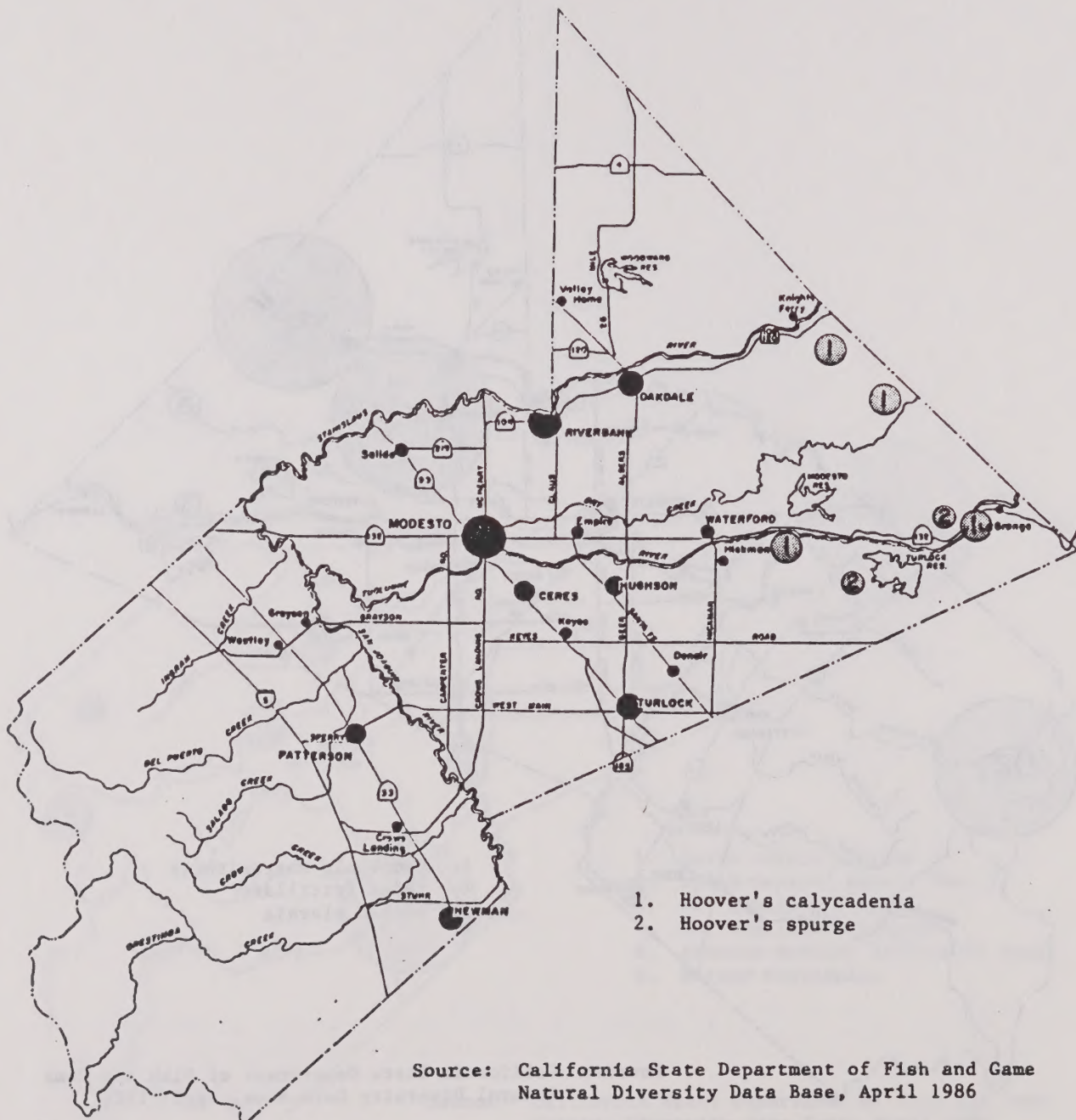


Source: California State Department of Fish and Game
 Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS



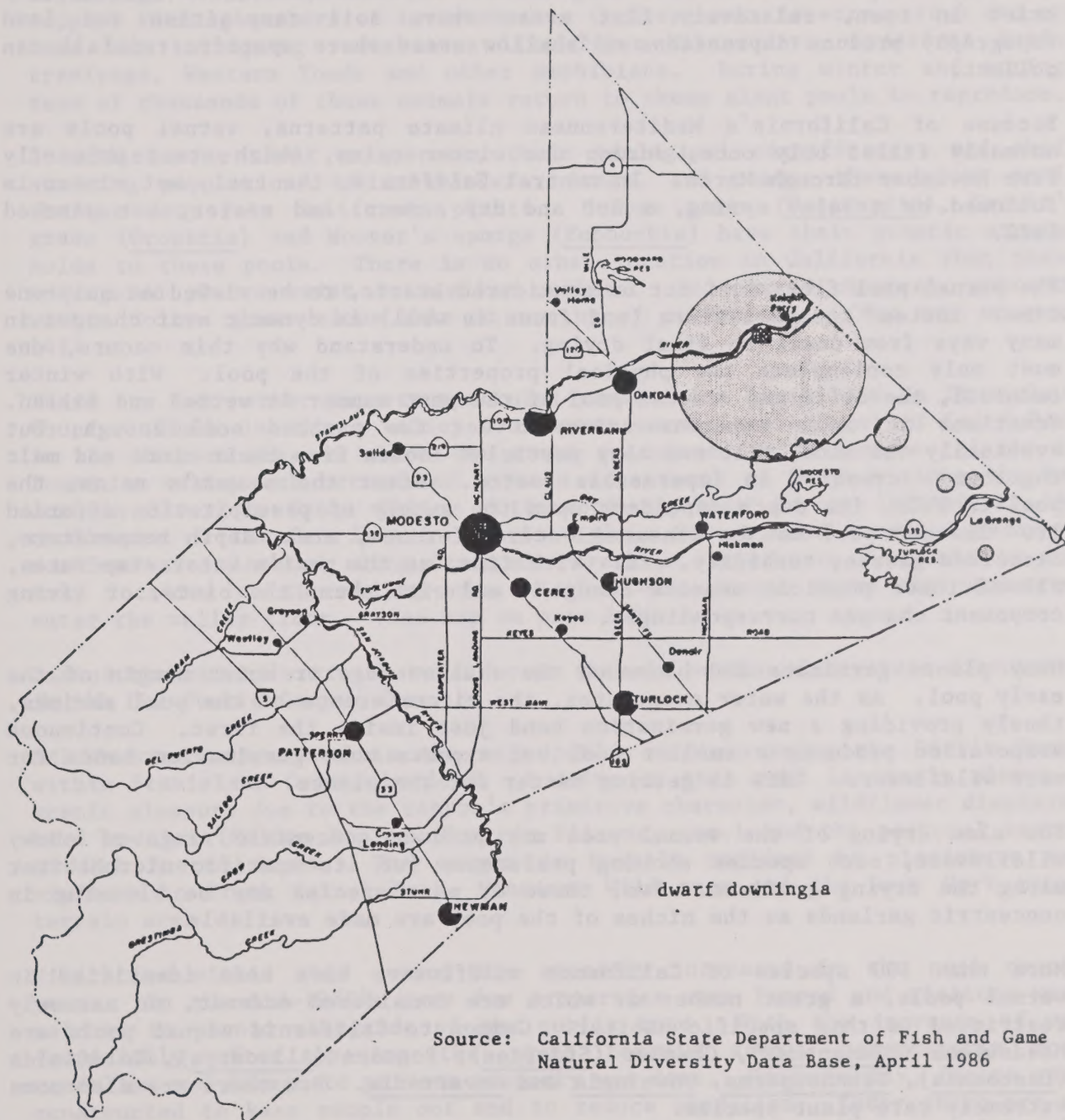
RARE AND ENDANGERED PLANTS



1. Hoover's calycadenia
2. Hoover's spurge

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

RARE AND ENDANGERED PLANTS



dwarf downingia

Source: California State Department of Fish and Game
Natural Diversity Data Base, April 1986

Natural Communities

There are several natural communities located within Stanislaus County. (See map on page 141) Considered one of the most important is the vernal pool. These intermittent bodies of water form when rain falls and cannot seep quickly into the soil. The pools can last for days, weeks, or even months, depending on the soil under the pool and the local weather. Normally such intermittent pools do not lie along a creek or watercourse, but instead they exist in open, relatively flat areas where soil composition and land topography produce depressions or shallow areas where sporadic rainfall can collect.

Because of California's Mediterranean climate patterns, vernal pools are normally filled only once, during the winter rains, which occur primarily from November through March. In central California, the cool, wet winter is followed by a balmy spring, a hot and dry summer, and cooler, but parched fall.

The vernal pool flora must not be considered static, to be viewed at only one time. Instead the pool flora (and fauna as well) is dynamic - it changes in many ways from onset to final drying. To understand why this occurs, one must only contemplate the physical properties of the pool. With winter rainfall, the dried and cracked pool of the past summer is wetted and filled. Sometimes it takes numerous rains to wet the parched soil enough, but eventually the sand, silt and clay particles loosen from their clods and melt together - creating an impermeable bottom. After the season's rains, the pool is full, its depth dependent upon the supply of precipitation afforded it. The new pool can be measured - circumference, area, depth temperature, dissolved gasses, turbidity, etc. With time, as the pool's water evaporates, all of these physical aspects change - and with them, the biota, or living component changes correspondingly.

Many plants germinate and bloom on the shallow edge or moist margin of the early pool. As the water evaporates, the circumference of the pool shrinks, thusly providing a new germination band just inside the first. Continuous evaporation produces a smaller pool but exposes more germination bands for more wildflowers. Life is getting better for the plants.

The slow drying of the vernal pool may produce concentric rings of showy wildflowers, each species showing preference for its specific microhabitat along the drying gradient. Two, three or more species may be blooming in concentric garlands as the niches of the pool are made available.

More than 100 species of California wildflowers have been identified in vernal pools, a great number of which are considered endemic, or narrowly restricted to this specific habitat. Common to California vernal pools are Meadowfoam (Limnanthes), Checker (Sidalcea), Popcorn (Allocarya), Goldfields (Lasthenia), Blennosperma, Downingia and Navarretia. But there are also some extremely rare plant species.

In eastern Stanislaus County California's largest remaining vernal pool complex exists east of Hickman, near Turlock Lake. These pools range from 50 to 300 acres in surface area and are unique to the state. Because of their size, they have also been called vernal playas. Early botanists, noting their enormous size, jokingly referred to them as "elephant wallows". These playas are not typical, and do not even exhibit the typical wildflower assemblage. Instead, because of their very different physical nature, they support teeming numbers of invertebrates (crustaceans, insects, etc.) and are home for intriguing vertebrates like Tiger Salamanders, Spadefoot Toads, treefrogs, Western Toads and other amphibians. During winter and spring, tens of thousands of these animals return to these giant pools to reproduce.

In addition to their uniqueness, their biological significance, and their swarming populations of salamanders, frogs, and toads, these giant pools shelter very rare California plants. Colusa grass (Neostapfia), Orcutt's grass (Orcuttia) and Hoover's spurge (Euphorbia) have their genetic strongholds in these pools. There is no other location in California that these endangered plants exist in similar numbers. Unisolated chemical compounds within Colusa grass alone make it worthy of protection. (See map on page 141)

There are four other important natural communities identified in Stanislaus County. These include a valley freshwater marsh located west of Laird Park in the Grayson area in which the state endangered Delta coyote thistle is found, a valley oak bottomland savanna area north of Grayson along the San Joaquin River, a Great Valley cottonwood riparian forest located at the confluence of the San Joaquin and Stanislaus Rivers, and a unique sycamore woodland area located along Orestimba Creek at Interstate 5. This is the only location on the valley side of the Coast Ranges where the sycamores enter the valley floor. (See map on page 141)

One of the county's true natural areas that is worthy of separate discussion is the Del Puerto Canyon area.

Del Puerto Canyon Road is the only public road crossing the Diablo Range within Stanislaus County borders. A drive on this road is nearly always a scenic pleasure due to the canyon's primitive character, wildflower displays, bird species (Golden Eagles, Prairie Falcons, etc.) and the pastoral beauty of Del Puerto Creek. The canyon is heavily utilized by picnickers and visitors to Frank Raines Park, Minniear Wild area and the Deer Park rough terrain area.

Visitation within this canyon has steadily increased in the past twenty years. In the mid-1960's very few properties were fenced and visitors were welcome to picnic alongside of the public road. With the increase of use (especially after opening the rough terrain area), considerably more vandalism and damage to private property was done. Consequently, fences were constructed to keep people out and to reduce vandalism. Today there are no places where the public is allowed or invited other than those owned by the County.

Del Puerto Canyon is both historically and presently significant. Early expeditions (Brewer/California Geological Survey, 1860-64) described its wildness, the presence of Grizzly Bears, Pronghorns, Mountain Lions, Great Blue Herons, and many other wild animals. Today, Del Puerto Canyon road crosses numerous geologically significant formations, including exposures of the Great Valley Sequence (Cretaceous and Jurassic), uplifted at the canyon's eastern end. The road continues (east to west) into the Franciscan Formations of the inner Coast Ranges and through serpentine outcrops. Within the Diablo Range there are numerous serpentine outcrops. Some of these are extensive in western Stanislaus County.

Del Puerto Canyon Road provides the only east-west public access of the Diablo Range within the Stanislaus County borders. This road encounters serpentine and serpentized rock in the Frank Raines Park region and travels through extensive serpentine outcrops west of the park.

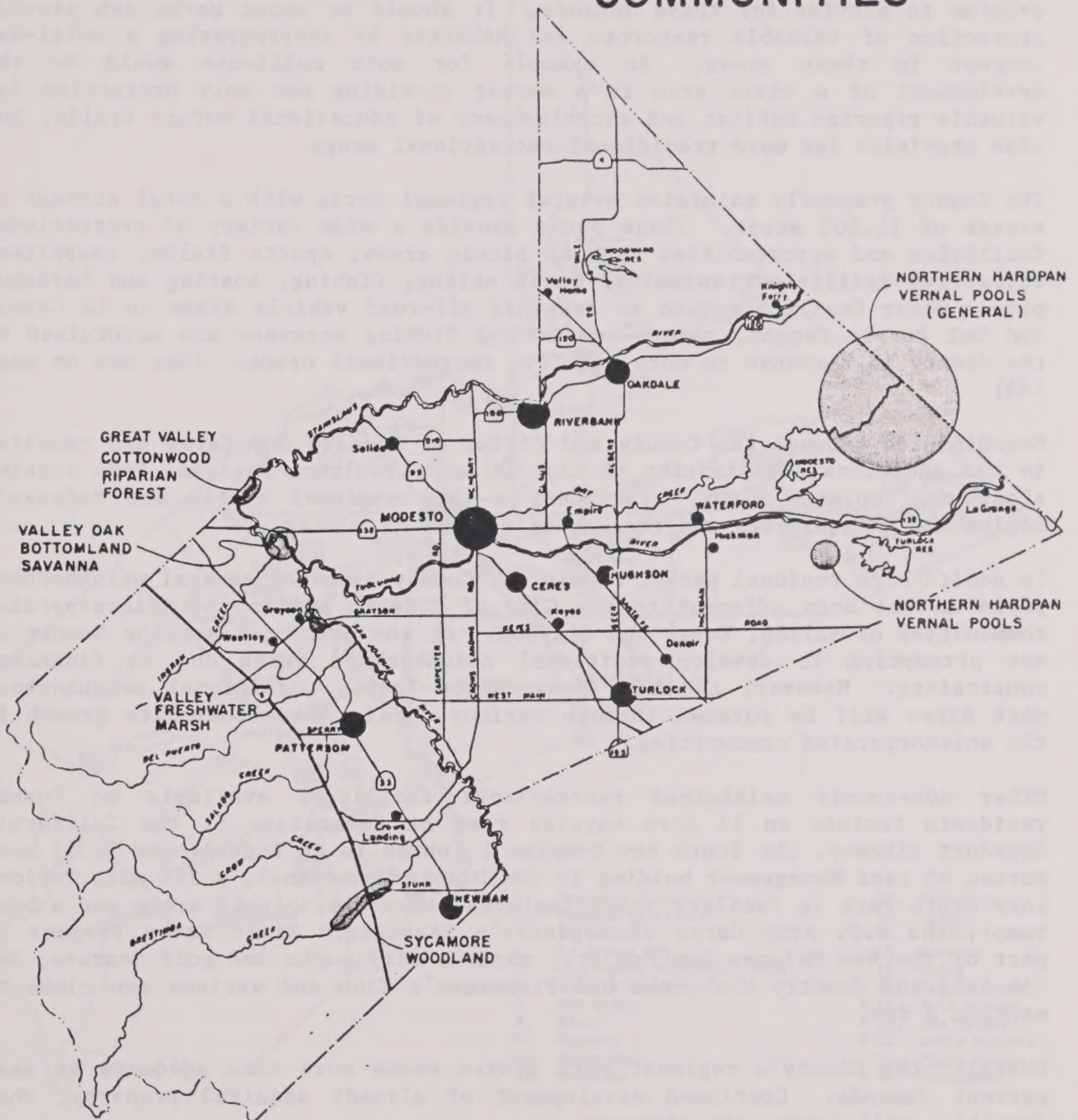
Due to the plant-toxicity of serpentine soils, endemic, rare or highly restricted plant species often occur. Numerous such species exist in this Diablo Range, Stanislaus County area. They include: Sharsmith's harebell (*Campanula sharsmithiae*), Mt. Hamilton thistle (*Cirsium campylon*), Spiny-sepaled coyote thistle (*Eryngium spinosepalum*), diamond-petaled California poppy (*Eschscholzia rhombi-petala*), and talus fritillary (*Fritillaria falcata*).

Del Puerto Canyon vegetation associations include grasslands, chaparral, juniper woodlands, riparian woodlands, foothill woodlands (pine-oak) and oak woodlands (oak only). Wildflowers are common and showy during winter and spring months. Numerous school groups utilize the canyon during the spring for wildflower and wildlife field trips.

Del Puerto Canyon wildlife includes mammals such as deer, coyote, fox, bobcat, mountain lion, skunk and raccoon. Many other species of mammals dwell here as well. The canyon is noted for its diverse bird populations.

In addition to common bird species, special birds like Golden Eagles and Prairie Falcons are commonly seen. Peregrine Falcons have often been reported within the canyon. The canyon maintains a diverse reptile population as well.

NATURAL COMMUNITIES



AESTHETIC, CULTURAL & RECREATIONAL RESOURCES

Parks and Trails

As population and leisure time increase, the demand for outdoor recreational facilities increases. Stanislaus County has traditionally had a fine ongoing program to provide for these demands. It should be noted parks can provide protection of valuable resources and habitats by incorporating a multi-use concept in these areas. An example for such multi-use would be the development of a river area in a manner providing not only protection for valuable riparian habitat and establishment of educational nature trails, but also provision for more traditional recreational usage.

The County presently maintains several regional parks with a total acreage in excess of 15,500 acres. These parks provide a wide variety of recreational facilities and opportunities such as picnic areas, sports fields, campsites, equestrian facilities, swimming, water skiing, fishing, boating and barbeque pits. Other facilities such as seasonal off-road vehicle areas in La Grange and Del Puerto Canyon, nature trails and fishing accesses are maintained by the County in response to more specific recreational needs. (See map on page 143)

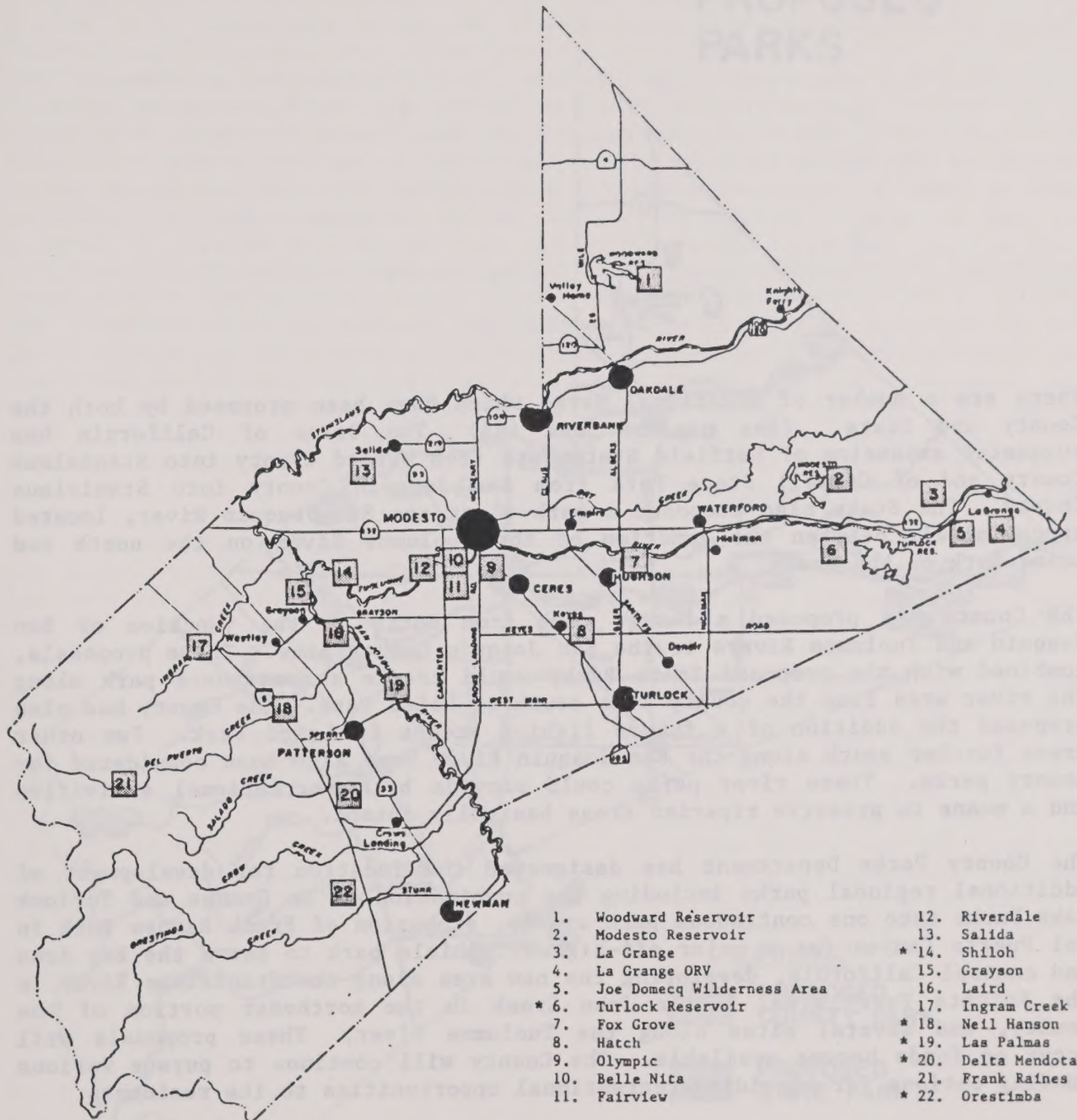
Coordination between the County and cities of Modesto and Ceres has resulted in the additional realization of the 700 acre Tuolumne Regional Park located along the Tuolumne River. Included in this regional system are Modesto's Legion and Mancini Park and the County's Belle Nita Park.

In addition to regional parks, Stanislaus County operates several neighborhood parks in the area adjacent to the City of Modesto and in the unincorporated communities of Salida, Keyes and Grayson. At the present time, the County is not attempting to develop additional neighborhood parks due to financial constraints. However, as these constraints lessen, additional neighborhood park sites will be pursued through various funding to accommodate growth in the unincorporated communities.

Other non-county maintained recreational facilities available to County residents include an 11 acre wayside rest on Interstate 5, the California Aqueduct Bikeway, the South Bay Complex 1 (which is an undeveloped 5,351 acre Bureau of Land Management holding in the Diablo Mountains), a 228 acre Turlock Lake State Park (a facility which includes campsites, picnic areas and a boat ramp), the U.S. Army Corps of Engineer's Stanislaus River Parks project as part of the New Melones Dam Project, various city parks and golf courses, Del Rio Gold and Country Club, the Old Fisherman's Club and various gun clubs to mention a few.

Overall, the County's regional park system seems more than adequate to meet current demands. Continued development of already acquired property, when feasible, will insure its adequacy.

COUNTY PARKS



* Fishing Access

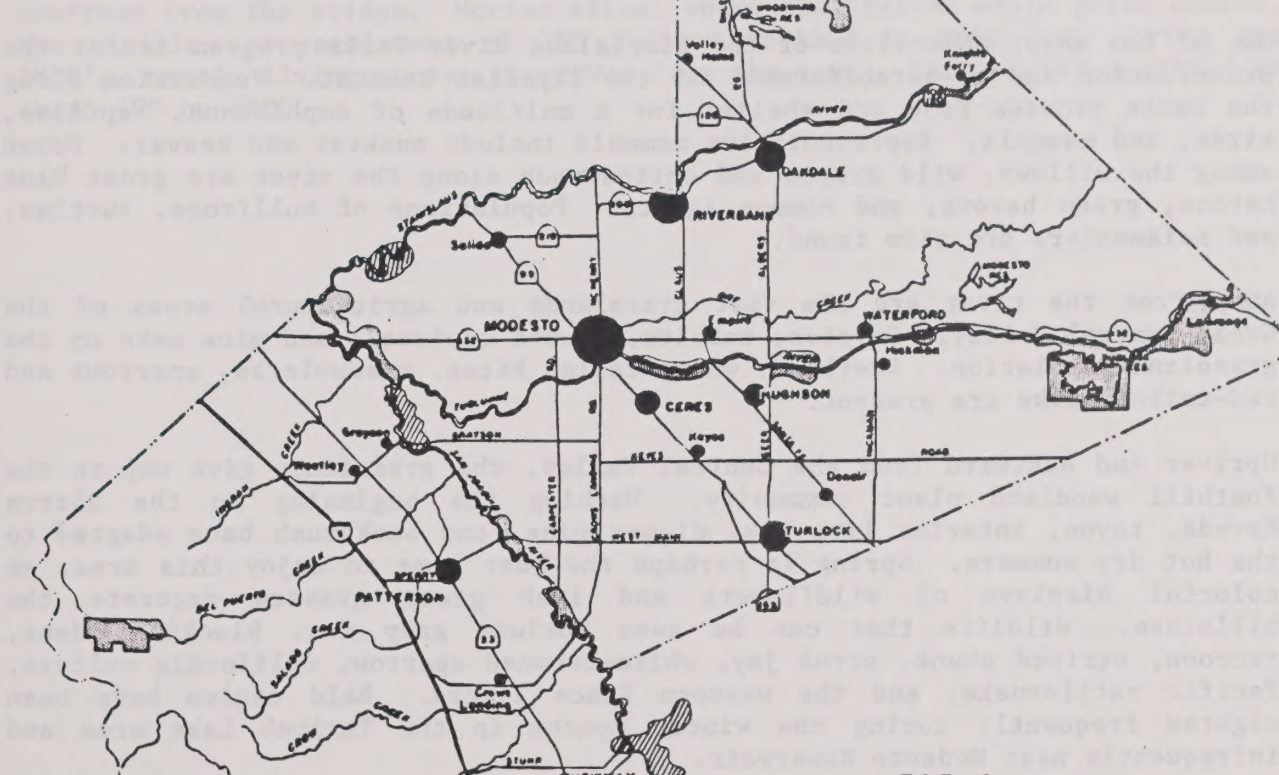
COUNTY PARKS

There are a number of additional parks which have been proposed by both the County and State. (See map on page 145) The State of California has suggested expansion of Hatfield State Park from Merced County into Stanislaus County and of Caswell State Park from San Joaquin County into Stanislaus County. The State also proposed a park along the San Joaquin River, located approximately between the junction of the Tuolumne River on the north and Laird Park on the south.

The County has proposed a future park from north of the junction of San Joaquin and Tuolumne Rivers to the San Joaquin County line. These proposals, combined with the proposed State Park, would create a continuous park along the river area from the county line south to Laird Park. The County has also proposed the addition of a future fishing access in Laird Park. Two other areas further south along the San Joaquin River have also been considered for county parks. These river parks could provide both recreational activities and a means to preserve riparian areas basically intact.

The County Parks Department has designated the location for development of additional regional parks including the combination of La Grange and Turlock Lake Parks into one continuous park system, expansion of Frank Raines Park in Del Puerto Canyon for a major off-highway vehicle park to serve the Bay Area and central California, developing the new area along the Stanislaus River in the Knights Ferry area, Little John Creek in the northeast portion of the County, and several sites along the Tuolumne River. These proposals will occur as funds become available. The County will continue to pursue various funding options for providing recreational opportunities to its residents.

PROPOSED PARKS



The U.S. Army Corps of Engineers Lower Stanislaus River Preservation Plan should be recognized as an innovative approach for the preservation of rivers and streams while protecting valuable riparian and historical areas and providing recreational opportunities. The purchase of flowage and vegetation easements along the entire lower river has been completed and several of the proposed parks are now complete, including the Knights Ferry, Orange Blossom, Valley Oak and Oakdale Recreation areas. (See map on page 148)

The Stanislaus River parks will include a wide variety of landscapes, from steep canyons east of Knights Ferry in the Knights Ferry Recreation Area, to the extensive agricultural flatlands of the San Joaquin Valley in the McHenry Avenue or Riverbank Recreational areas still to be developed. Close to several major metropolitan areas, the recreational opportunities are as varied as the geography. On the river, you can go swimming, kayaking, canoeing, rafting and fishing. Along the banks, the jungle-like vegetation forms a picturesque backdrop for picnicking, hiking, camping, and bank fishing.

One of the major objectives of the Stanislaus River Parks program is for the preservation and re-establishment of the riparian habitat. Vegetation along the banks provide food and shelter for a multitude of amphibians, reptiles, birds, and mammals. Representative mammals include muskrat and beaver. Found among the willows, wild grape, and cottonwoods along the river are great blue herons, green herons, and common egrets. Populations of bullfrogs, turtles, and salamanders are also found.

Away from the river are the vast grasslands and agricultural areas of the Great Central Valley. Coyotes, rabbits, ground squirrels and mice make up the grassland population. Overhead, white-tailed kites, meadowlarks, sparrows and red-tailed hawks are present.

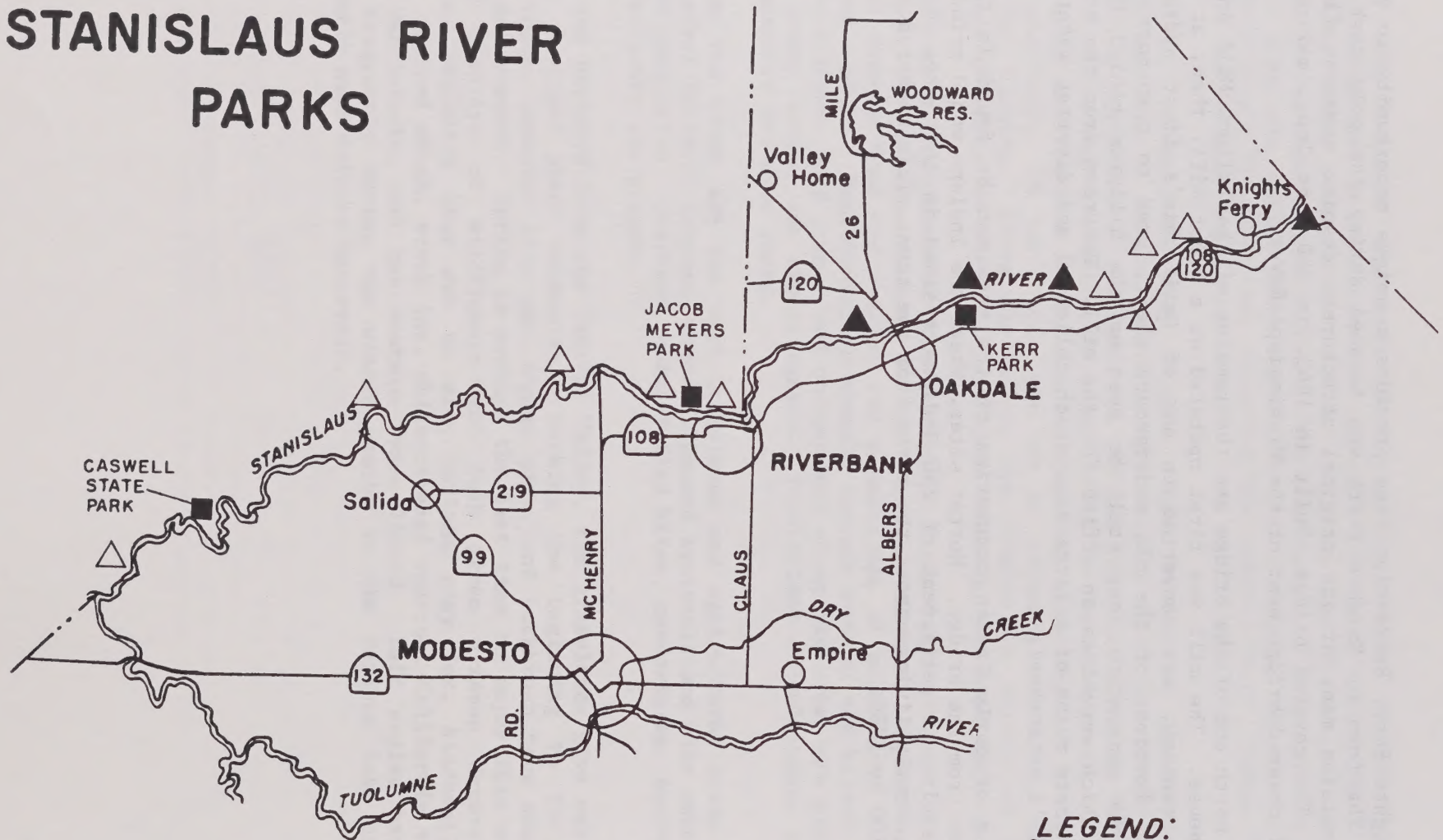
Upriver and eastward from the Central Valley, the grasslands give way to the foothill woodland plant community. Marking the beginning to the Sierra Nevada, toyon, interior live oak, digger pine, and buckbrush have adapted to the hot dry summers. Spring is perhaps the best time to enjoy this area, as colorful displays of wildflowers and lush green grasses decorate the hillsides. Wildlife that can be seen include gray fox, blacktail deer, raccoon, striped skunk, scrub jay, white-crowned sparrow, California vulture, Pacific rattlesnake, and the western fence lizard. Bald eagles have been sighted frequently during the winter months in the Turlock Lake area and infrequently near Modesto Reservoir.

The Knights Ferry Recreation Area provides a unique opportunity to visit the past. The town of Knights Ferry was founded during the gold rush era and still retains many of its original structures, despite numerous floods and fires. The covered bridge, built in 1863, is 330 feet long, making it the longest covered bridge west of the Mississippi River.

At the north end of the bridge are the remains of the Tulloch Mill and an old stone house. The mill was first operated as a flour mill, then, at the turn of the century, was converted to one of California's first hydroelectric plants. Portions of the old underground shaft, used to transport water to power the generators, can still be seen on the hillside behind the stone house, which served as an office for the mill. Upstream from the bridge are the concrete ruins of a large dam, which collected and diverted water to turn the mill's waterwheel.

Evidence of early Indian occupation of the area can be found in the rocks upstream from the bridge. Mortar sites, where the Indians would grind acorns, are visible. A settlement of 250 Indians resided in this area during the 1850's, mostly living across the river from the town. This number declined to about 100 by 1880.

STANISLAUS RIVER PARKS



LEGEND:

- ▲ EXISTING PARKS
- △ PROPOSED PARKS

Historic and Cultural Sites

Historical sites and landmarks are reminders of the social, cultural, and political history of Stanislaus County. They provide insight to the County's present by maintaining ties to its past. The County has recognized this fact and has taken steps to protect its most significant historical sites.

Areas that are considered "sensitive" (likely to have archaeological or historic cultural resources) are often located near natural watercourses, springs or ponds, and on elevated ground. Many archaeological sites in the Central Valley have been buried by silt and might not be evident by inspection of the surface of the ground. The channels of natural watercourses change (meander) over the years and springs dry up, therefore, archaeological sites may be found in areas that are distant from present sources of water.

Only an estimated 8 percent of Stanislaus County has been surveyed for evidence of archaeological or historical cultural resources. There are 230 recorded cultural resource sites in Stanislaus County; 206 are archaeological sites and 24 are historical sites. These records of known archaeological and historical sites are filed with the Office of Historic Preservation, Central California Information Center, California State University, Stanislaus, Turlock, California. Exact locations are kept confidential so as to protect these valuable resources.

Major impacts upon some types of archaeological and historical cultural resources include agricultural leveling, housing and road construction, ditch-digging, and generally, most types of urban and rural development.

The California Environmental Quality Act requires review to include archaeological and historical cultural resources. Types of archaeological cultural resources that might occur in Stanislaus County include occupation sites, indicated by structural features such as house pits, ceremonial locations, remains of sweathouses and storage structures. Occupation site deposits, often called "midden sites" are rich in materials such as charcoal, burned bone, chipped and ground stone, fire-cracked rock, baked clay, shell and glass (trade) beads, and (rarely) pottery. Other types of archaeological sites include cemeteries, isolated burials, quarry sites, petroglyphs (rock carvings) and pictograph (rock painting) sites, kill sites where animals were killed and butchered, and sites where certain types of resources (stone, vegetal, clay, paint pigments) were obtained or processed.

Historic sites include old homes, adobes, cabins, and structures or features related to agriculture, mining, logging and other enterprises. Historic resources are recognized as significant if they are more than 50 years old, but some structures or features have been used more recently, and because of their character, associations or appearance are of local, county, state or national significance.

Significance is one of the least understood concepts in historic and archaeological preservation. When assessing significance, an effort should be made to ensure that properties important to all sorts of people, and properties representing all sorts of cultural phenomena, are intelligently and efficiently treated.

Significance identifies the potential of a given archaeological or historic cultural resource to have or impart information pertaining to public, historical, scientific, ethnic, social or other aspects of the common human heritage on a local, county, state or national level. Significant cultural resources may be one of a kind, or they may be representative of their type; they may be the oldest known examples of their kind; they may be associated with the lives of important individuals; they may be significant to specific interest groups.

The significance of a cultural resource may be derived from professional interests (such as research values) or social concerns (heritage values), and significance may entail both realized and potential qualities.

The two chief historical areas within Stanislaus County are in and around the gold rush towns of Knights Ferry and La Grange. Located in each community are a number of historic buildings considered worthy of preservation. The County, working closely with the residents of these communities, has established a historical site zone ensuring that all development within the two towns will be consistent with their historical nature.

Adjacent to the town of La Grange, the County has developed a 750 acre historic park. The vast majority of this acreage has been preserved in its natural state. The central attractions are an abandoned mining camp in the area and an old adobe building, stage stop, old schoolhouse and cemetery. In the Knights Ferry area, a historical bridge is covered by HS (Historical Site) zoning and is being preserved as part of the Army Corps of Engineers project on the Stanislaus River.

There are a number of other points of historical interest within Stanislaus County: The communities of Grayson and Empire (City) which were former county seats; the site of Adamsville, an early settlement and first County seat; palm tree lined Las Palmas Avenue; and the Orestimba Creek Indian Area. There is also a prehistoric grinding site off Highway 4 on the Orvis Ranch (the Old Snow Ranch) west of Copperopolis. Historical Markers are located at the Empire City Site, Knights Ferry, La Grange and Langworth (between Riverbank and Oakdale). (See map on page 151)

PUBLIC OPEN SPACE LANDS



Scenic Highways

Scenic highways are a means of preserving the beauty and quality of various transportation routes. The scenic highway designation maintains areas which are in their natural or undeveloped condition. The State of California has designated various State Highways as having natural scenic beauty worthy of preservation. Within Stanislaus County, Interstate Highway 5 is an officially adopted State Scenic Highway. The State has no other potential scenic highways designated within the County.

Past studies have identified several routes as potential scenic routes including State Highway 132 (west of Modesto), Orange Blossom Road, La Grange Road, and Del Puerto Canyon Road. In addition to these, State Highway 4, in the north-eastern portion of the County seems worthy of preservation as a scenic highway. All of the above listed roads are characterized, with minor exceptions, by open, undeveloped areas in either a natural condition or devoted to agricultural production, much like the area along Interstate 5.

PUBLIC HEALTH AND SAFETY

Public health and safety requires special consideration in the Open Space Element. Open space conservation and preservation is essential for public health and safety, especially in areas subject to fires, earthquakes, landslides, flooding and poor water quality. By preserving these areas from development, Stanislaus County can aid in the protection of the community from any unreasonable risks associated with identified hazards. This section identifies hazards which exist in Stanislaus County. A more detailed explanation can be found in the Safety Element.

Fire Hazards

The two types of fire hazards are urban and brush fires. The problems of each are different as are the possible solutions to them.

Urban fire hazards are primarily those associated with commercial, industrial and residential structures and activities surrounding them. These occur for a wide variety of reasons associated with human activities, with the hazard and danger of any particular fire dependent upon the individual circumstances. In general, however, fire hazards are greatest in residential and commercial areas containing older, less well-cared for buildings which do not meet building codes. There are numerous areas of such buildings throughout the county, in both cities and unincorporated areas.

Property damage from urban fires is often substantial although in the majority of cases, damage can be limited to only one or a few structures. Injuries and deaths are more frequent in residential fires than any other type.

Brush fire hazards can be traced to four causes: topography, vegetation, climate, and people. Chaparral, grasslands and other wild plant life provide the major sources of fire fuel. Stanislaus County has a Mediterranean type of climate with cool, wet winters and hot, dry summers. The hot, dry summers in Stanislaus County produce large areas of extremely dry vegetation often located on topography which enhance the spread of flames and prohibits access of fire fighting equipment. When people are introduced into the above situation, the chances of fires are greatly increased due to the variety of activities in which they engage.

Within Stanislaus County, the areas of potential brush fires are the Diablo Range, generally located west of Interstate 5, and the Sierra Nevada foothills in the eastern portions of the County. According to the California State Division of Forestry, the majority of these areas are rated as having the highest possible critical fire weather frequency on an annual basis. This factor, combined with vegetation and slope percentage, produce overall fire ratings of moderate to high throughout the fire hazardous areas.

Brush fires have a secondary effect on erosion which can occur due to loss of vegetation. This erosion effects not only the burned land but land below it as well where eroded material may be deposited.

Although the County has no single unified set of safety standards, there are a number of standards, specifications and regulations which apply to fire safety. These include Building Code Standards, zoning, and subdivision regulations that specify building material quality, setbacks, relationships between land uses, land use density and preservation of open space lands. The major impact of these standards has been directed towards current and future development. They do little to alleviate urban fire problems in older areas. The social and economic ramifications of attempting to mitigate the potential threat of fire hazardous structures are great.

Seismic and Geologic Hazards

Earthquakes originate as movement or slippage occurring along an active fault. These movements generate shock waves that result in ground shaking. Structures of all types, if not designed or constructed to withstand ground shaking, may suffer severe damage or collapse. Likewise, some slopes will collapse due to the soil or geological characteristics resulting in hazard both in terms of failure in structures located thereon, or within the path of resulting land slides.

There are several faults known to exist within Stanislaus County. In the extreme eastern part of the County, the Bear Mountain and Melones faults are found, though believed to have been inactive for the past 150 million years. No faults are currently known to exist within the valley portion of the County. Within the Diablo Range, the most recent movements were along the Tesla-Ortigalita fault approximately five million years ago, although earthquake activity without surface fracturing or faulting is still common. Since 1930, one earthquake epicenter of a magnitude greater than 4.0 on the Richter scale was recorded in Stanislaus County.

Numerous earthquakes occur each year along California's major faults which are the San Andreas, Calaveras, Hayward and Nacimiento faults.

Information furnished by the State Department of Mines and Geology indicates that ground shaking along these faults can produce damage within the County to reach varying intensities rated on the Modified Mercalli Intensity Scale of 1931. The eastern half of the County can be expected to have shaking to an intensity of VI or VII, producing minor to moderate damage. The western half of the County can expect to receive shaking to an intensity of VII or VIII Mercalli which can cause considerable damage to ordinary structures. The area around the City of Newman may experience a shaking intensity of IX or X.

Aside from structural damage, earthquake activity can produce two other types of adverse effects. The first is ground failure, which itself is a factor in making some lands unsuitable for development. Virtually the entire area located west of Interstate 5 is composed of geological formations that, due to structure, slope, runoff, lack of vegetation, earthquake and/or human activity, are considered extremely susceptible to failure and sliding. On a California Division of Mines and Geology scale used to rate landsliding potential, this area is rated at five, the next to highest rating on a scale of six. The prime reason is the generally unstable formation comprising the underlying geologic structure of the Diablo Range. The remainder of the area is rated at six.

There is a history of a number of major slides throughout the Diablo Range in Stanislaus County. It is evident that the steep slopes and unstable geology of the area on the west side of the County, even without considering the very real possibility of an earthquake, present a substantial limitation to building. Construction is possible within this area, but a detailed engineering site study and possible special construction make development difficult and costly.

Flood Hazard

Flooding has been a major problem throughout the history of Stanislaus County, particularly with the encroachment of urban growth into floodplains. Major floods have occurred in 1861, 1938, 1950, 1955 and 1969. Substantial action has taken place which reduce flooding hazards such as the New Don Pedro Dam on the Tuolumne River and the New Melones Dam on the Stanislaus River near Jamestown. These dams should eliminate flood danger except under extremely unique circumstances.

The State Reclamation Board has identified and adopted floodplains, defined in cubic feet per second of flow, along the San Joaquin River, Stanislaus River, Tuolumne River and portions of Dry Creek. Any non-agricultural encroachment into these areas requires a permit from the Reclamation Board, which will serve to prevent reduction in channel capacity of the waterways.

The Federal Emergency Management Agency conducted a study identifying flood zones. As a result of that study, the National Flood Insurance Act of 1968 was enacted. Stanislaus County adopted an ordinance in response to this act. Any building permit acquired within the 100 year flood zone designation must comply to the ordinance.

Another significant type of damage, which can result from earthquake activity, is from flooding caused by dam failure. There are a number of dams, both in and out of the County on the east and west sides, which could produce flooding should they fail. There are requirements that the owners of dams prepare maps showing areas which would be flooded should the dams fail. Dam failure inundation maps are available for dams on the Stanislaus and Tuolumne Rivers.

Water Table

There are a number of areas within the County which have a relatively high water table that can cause problems if septic tanks are used. A high water table (often coupled with adverse absorptive qualities of the soil) can cause septic tank failures and possible deterioration of ground water quality resulting in health hazards. The westside community of Crows Landing depend entirely upon individual septic tanks in areas of high water table and poor soil percolation conditions. High water tables are also found around Turlock extending to the San Joaquin River.

Water Quality

Agricultural and urban water supplies for Stanislaus County originates from both ground water and surface water. The main sources for surface water are the three major rivers; the Stanislaus, Tuolumne and the San Joaquin. These rivers all contain water of excellent quality at their sources in the Sierra Nevada, but as they flow through the Valley, their quality is impaired by each successive use. Both agricultural and domestic use and return contribute to this degradation. As flows decrease seasonally, concentrations of pollutants increase, particularly in the San Joaquin, which serves as a drain for return water and domestic and industrial wastes through the entire San Joaquin Valley. Quality of the Stanislaus is somewhat deteriorated at its confluence with the San Joaquin River. The Tuolumne's condition has deteriorated more than the Stanislaus due to agricultural return wastes and gas well wastes by the time it reaches the San Joaquin.

Groundwater is the major source of domestic and industrial water in Stanislaus County, and is used as supplemental water supply for irrigation. Open space land is the main contributor to groundwater recharge. The quality of groundwater is determined by the geologic formations through which it filters and thereby cannot be controlled.

The groundwater situation west of the San Joaquin River is substantially different from the rest of the County to the east. There are three major problems which exist: a rising perched water table, saline build-up in the soil and an increasing imbalance in the groundwater body. These conditions exist through combinations of canal seepage, excessive irrigation and poor quality irrigation waters. The cumulative effect of these problems can reduce crop yield and soil productivity. In attempting to reduce the salt imbalance, excessive amounts of water have been put in the soil, causing serious drainage problems.

The decreasing groundwater quality is having adverse effects on domestic water supplies as well as the agricultural lands. As groundwater becomes unacceptable for domestic use, other sources will have to be found. One solution that has been suggested is the use of water from the Delta Mendota Canal for domestic purposes. This water currently meets public health standards.

The groundwater east of the San Joaquin River does not have the serious problems that exist on the west side. Depth of the water table varies from only a few feet around Turlock to several hundred feet. The overall quality of groundwater is good, although some chemical are present in varying amounts that might eventually cause some problems. Groundwater pumping around Modesto, improperly sealed wells, and past dairying practices have contributed to increasing concentrations of certain chemicals.

Around Modesto the overall groundwater supply appears good, except in the extreme eastern portion. Extensive pumping coupled with insufficient recharge (due to continued covering of recharge areas with impervious surfaces) has created a cone of depression in the Modesto area water table. Urbanization of agricultural lands surrounding Modesto (which are also prime water recharge areas) will likely cause this cone of depression to continue to increase in size. Aside from lowering the amount of water available, this cone of depression has also caused an increase in the chloride levels of the groundwater.

Air Quality

Open space is beneficial to the air quality of an area. Large amounts of open undeveloped areas, including broad base and limited base agricultural lands contribute to air quality positively through the hydrogen oxygen cycle and negatively by generating dust pollutants. Some agricultural practices on extensively farmed land including burning, use of agricultural hullers and use of chemical spraying to kill weeds, leaving the soil vulnerable to erosion for months, do contribute at times to an increased pollutant level. Some of these activities can be controlled by the local Air Pollution Control District which, for instance, only allows agricultural burning on relatively clean air days. Loss of agricultural open space to urbanization usually means the loss of oxygen producing plants, increased vehicular pollution and possible emission producing commercial or industrial land uses. Ironically, location of urban intensity development on low quality soils while logical from the aspect of prime agricultural preservation often results in scattered development patterns substantially increasing the amounts of air pollution resulting from vehicular emission.

In predominantly agricultural areas, wind can loosen and carry dirt and dust which may reduce visibility and cause considerable crop damage. The dry and arid climate of the County coupled with windy conditions caused by the Diablo Mountain Range and agricultural activities creates atmospheric dust that has caused automobile accidents, crop damage ranging from delayed growth and reduced yield to actual crop death and respiratory ailments that sometimes prove fatal.

APPENDIX

2110. This chapter shall be known as the "Chapter on the Conservation of the Fish and Game Resources of the State".

2111. The Legislature hereby finds and declares that the conservation of the fish and game resources of the State is a matter of public interest and that it is the duty of the Legislature to provide for the conservation of these resources.

2112. It is the policy of the State to conserve the fish and game resources of the State and to provide for the enjoyment of these resources by the people of the State.

2113. The Legislature hereby creates the "Department of Fish and Game" and appoints the Governor to appoint and remove the Director of the Department.

2114. The Department of Fish and Game shall have the honor and privilege of the State and shall be known as the "Department of Fish and Game".

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2120. The Department of Fish and Game shall have the honor and privilege of the State and shall be known as the "Department of Fish and Game".

APPENDIX III-1

SURFACING MINING AND RECLAMATION ACT OF 1975

Surfacing Mining and Reclamation Act of 1975 (Article 1. General Provisions)

2710. This chapter shall be known and may be cited as the Surface Mining and reclamation Act of 1975.

2711. (a) The legislature hereby finds and declares that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

(b) The Legislature further finds that the reclamation of mined lands as provided in this chapter will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land.

(c) The Legislature further finds that surface mining takes place in diverse areas where the geologic, topographic, climatic, biological, and social conditions are significantly different and that reclamation operations had the specifications therefore may vary accordingly.

2712. It is the intent of the Legislature to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

(b) The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.

(c) Residual hazards to the public health and safety are eliminated.

2713. It is not the intent of the legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

2714. The provisions of this chapter shall not apply to any of the following activities:

(a) Excavations or grading conducted for farming or onsite construction or for the purpose of restoring land following a flood or natural disaster.

(b) Prospecting for, or the extraction of, minerals for commercial purposes and the removal of overburden in total amounts of less than 1,000 cubic yards in any one location of one acre or less.

(c) Surface mining operations that are required by federal law in order to protect a mining claim, if such operations are conducted solely for the purpose.

(d) Such other surface mining operations which the board determines to be of an infrequent nature and which involve only minor surface disturbances.

2715. No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the following:

(a) On the police power of any city or county or on the power of any city or county to declare, prohibit, and abate nuisances.

(b) On the power of the Attorney General, at the request of the board, or upon his own motion, to bring an action in the name of the people of the State of California to enjoin any pollution or nuisance.

(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer.

(d) On the right of any person to maintain at any time any appropriate action for relief against any private nuisance as defined in Part 3 (commencing with Section 3479) of Division 4 of the Civil Code or for any other private relief.

(e) On the power of any city or county to regulate the use of buildings, structures, and land as between industry, business, residents, open space (including agriculture, recreation, the enjoyment of scenic beauty, and the use of natural resources), and other purposes.

2716. Any person may commence an action on his own behalf against the board or the State Geologist for a writ of mandate pursuant to Chapter 2 (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure to compel the board or the State Geologist to carry out any duty imposed upon them pursuant to the provisions of this chapter.

2717. The board shall submit to the legislature on December 1st of each year a report on the actions taken pursuant to this chapter during the preceding fiscal year. Such report shall include a statement of the actions, including legislative recommendations, which are necessary to carry out more completely the purposes and requirements of this chapter.

2718. If any provision of this chapter or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

Article 2. Definitions

2725. Unless the context otherwise requires, the definitions set forth in this article shall govern the construction of this chapter.

2726. "Area of regional significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in a particular region of the state within which the minerals are located and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local significance.

2727. "Area of statewide significance" means an area designated by the board pursuant to Section 2790 which is known to contain a deposit of minerals, the extraction of which is judged to be of prime importance in meeting future needs for minerals in the state and which, if prematurely developed for alternate incompatible land uses, could result in the permanent loss of minerals that are of more than local or regional significance.

2728. "Lead agency" means the city or county which has the principal responsibility for approving a surface mining operation pursuant to this chapter.

2729. "Mined lands" includes the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including private ways and roads appurtenant to any such area, land excavations, workings, mining waste, and areas in which structures, facilities, equipment, machines, tools, or other materials or property which result from, or are used in, surface mining operations are located.

2730. "Mining waste" includes the residual of soil, rock, mineral, liquid, vegetation, equipment, machines, tools, or other materials or property directly resulting from, or displaced by, surface mining operations.

2731. "Operator" means any person who is engaged in surface mining operations, himself, or who contracts with others to conduct operations on his behalf, except a person who is engaged in surface mining operations as an employee with wages as his sole compensation.

2732. "Overburden" means soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations.

2732.5 "Permit" means any authorization from, or approval by, a lead agency, the absence of which would preclude surface mining operations.

2733. "Reclamation" means the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

2734. "State policy" means the state policy for the reclamation of mined lands adopted pursuant to Section 2755.

2725. "Surface mining operations" means all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine.

Surface mining operations shall include, but are not limited to:

- (a) Inplace distillation or retorting or leaching.
- (b) The production and disposal of mining waste.
- (c) Prospecting and exploratory activities.

Article 3. District Committees

2740. In carrying out the provisions of this chapter, the board may establish districts and appoint one or more district technical advisory committees to advise the board. In establishing districts for these committees, the board shall take into account physical characteristics, including, but not limited to, climate, topography, geology, type of overburden, and principal mineral commodities. Members of the committees shall be selected and appointed on the basis of their professional qualifications and training in mineral resource conservation, development and utilization, land use planning, mineral economics, or the reclamation of mined lands.

2741. The members of the committee shall receive no compensation for their services, but shall be entitled to their actual and necessary expenses incurred in the performance of their duties.

Article 4. State Policy for the Reclamation of Mined Lands

2755. On or before January 1, 1977, the board shall adopt state policy for the reclamation of mined lands in accordance with the general provisions set forth in Article 1 (commencing with Section 2710) of this chapter and pursuant to Chapter 4.5 (commencing with Section 11371) of Part 1 of Division 3 of Title 2 of the Government Code.

2756. State policy shall apply to the conduct of surface mining operations and shall include, but shall not be limited to, measures to be employed by local governments in specifying grading, backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements, and for soil erosion control, water quality and watershed control waste disposal, and flood control.

2757. The state policy adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of mined lands, and shall be used as standards by local governments in preparing specific and general plans, including the conservation and land use elements of the general plan, and zoning ordinances. The state policy shall not include aspects of regulating surface mining operations which are solely of local concern, and not of statewide or regional concern, as determined by the board, such as, but not limited to, hours of operation, noise, dust, fencing, and purely aesthetic considerations.

2758. Such policy shall include objectives and criteria for all of the following:

(a) Determining the lead agency pursuant to the provisions of Section 2771.

(b) The orderly evaluation of reclamation plans.

(c) Determining the circumstances, if any, under which the approval of a proposed surface mining operation by a lead agency need not be conditioned on a guarantee assuring reclamation of the mined lands.

2759. The state policy shall be continuously reviewed and may be revised. During the formulation or revision of such policy, the board shall consult with, and carefully evaluate the recommendations of the State Geologist, any district technical advisory committees, concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals.

2760. The board shall not adopt or revise the state policy unless a public hearing is first held respecting their adoption or revision. At least 30 days prior to such hearing, the board shall give notice of the hearing by publication pursuant to Section 6061 of the Government Code.

2761. (a) On or before January 1, 1977, and, as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify urban and urbanizing portions of the following areas within the state subject to urban expansions or other irreversible land uses:

(1) Standard metropolitan statistical areas and such other areas for which information is readily available.

(2) Other areas as may be requested from time to time by the board.

(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, and such other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation

(c) As it is completed by county, the State Geologist shall transmit such information to the board for incorporation into the state policy and for transmittal to lead agencies.

2762. (a) Within 12 months of receiving the mineral information described in Section 2761, and also within 12 months of the designation of an area of statewide or regional significance within its jurisdiction, every lead agency shall, in accordance with state policy, establish mineral resource management policies to be incorporated in its general plan which will:

(1) Recognize mineral information classified by the State Geologist and transmitted by the board.

(2) Assist in the management of land use which affect areas of statewide and regional significance.

(3) Emphasize the conservation and development of identified mineral deposits.

(b) Every lead agency shall submit proposed mineral resource management policies to the board for review and comment prior to adoption.

(c) Any subsequent amendment of the mineral resource management policy previously reviewed by the board shall also require review and comment by the board.

(d) Prior to permitting a use which would threaten the potential to extract minerals in an area classified by the State Geologist as an area described in paragraph (3) of subdivision (b) of Section 2761, the lead agency may cause to be prepared an evaluation of the area in order to ascertain the significance of the mineral deposit located therein. The results of such evaluation shall be transmitted to the State Geologist and the board.

Article 5. Reclamation Plans and the Conduct of Surface Mining Operations

2770. Except as specified in Section 2776, no person shall conduct surface mining operations unless a permit is obtained from, and a reclamation plan has been submitted to, and approved by, the lead agency for such operation pursuant to this article.

2771. Whenever a proposed surface mining operation is within the jurisdiction of two or more public agencies, is a permitted use within the agencies, and is not separated by a natural or man-made barrier coinciding with the boundary of the agencies, the evaluation of the proposed operation shall be made by the lead agency in accordance with the procedures adopted by the lead agency pursuant to Section 2774. In the event that a dispute arises as to which is the lead agency, any public agency which is a party to the dispute may submit the matter to the board; and the board shall designate the lead agency, giving due consideration to the capability of such agency to fulfill adequately the requirement of this chapter.

2772. The reclamation plan shall be filed with the lead agency on a form provided by the lead agency, by any person who owns, leases, or otherwise controls or operates on all, or any portion of any mined lands, and who plant to conduct surface mining operations thereon. The reclamation plan shall include the following information and documents:

(a) The name and address of the operator and the names and addresses of any persons designated by him as his agents for the service of process.

(b) The anticipated quantity and type of minerals for which the surface mining operation is to be conducted.

(c) The proposed dates for the initiation and termination of such operation.

- (d) The maximum anticipated depth of the surface mining operation.
- (e) The size and legal description of the lands that will be affected by such operation, a map that includes the boundaries and topographic details of such lands, a description of the general geology of the area, a detailed description of the geology of the area in which surface mining is to be conducted, the location of all streams, roads, railroads, and utility facilities within, or adjacent to, such lands, the location of all proposed access roads to be constructed in conducting such operation, and the names and addresses of the owners of all surface and mineral interests of such lands.
- (f) A description of and plan for the type of surfac mining to be employed and a time schedule that will provide for the completion of surface mining on each segment of the mined lands so that reclamation can be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further disturbance by the surface mining operation.
- (g) A description of the proposed use or potential uses of the land after reclamation and evidence that all owners of a possessory interest in the land have been notified of the proposed use or potential uses.
- (h) A description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished, including: (1) a description of the manner in which contaminants will be controlled, and mining waste will be disposed; and (2) a description of the manner in which rehabilitation of affected streambed channels and streambanks to a condition minimizing erosion and sedimentation will occur.
- (i) An assessment of the effect of implementation of the reclamation plan on future mining in the area.
- (j) A statement that the person submitting the plan accepts responsibility for reclaiming the mined lands in accordance with the reclamation plan.
- (k) Any other information which the lead agency may require by ordinance.

2773. The reclamation plan shall be applicable to a specific piece of property or properties, and shall be based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principal mineral commodities.

2774. Every lead agency shall adopt ordinances establishing procedures for the review and approval of reclamation plans and the issuance of a permit to conduct surface mining operations. Such procedures shall require at least one public hearing and periodic inspections of surface mining operations, and may include provisions for liens, surety bonds, or other security to guarantee reclamation in accordance with the reclamation plan. Such ordinances shall be continuously reviewed and revised, as necessary in order to ensure that such ordinances are in accordance with state policy. Lead agencies shall notify the State Geologist of the filing of an application for a permit to conduct surface mining operations.

On request of a lead agency, he State Geologist shall furnish technical assistance to assist in the review of reclamation plans.

2775. (a) An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency, or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may, within 15 days of exhausting his rights to appeal

in accordance with the procedures of the lead agency, appeal to the board.

(b) The board may, by regulation, establish procedures for declining to hear appeals that it determines raise no substantial issues.

(c) Appeals that the board does not decline to hear shall be scheduled and heard at a public hearing held within the jurisdiction of the lead agency which processed the original application within 30 days of the filing of the appeal, or such longer period as may be mutually agreed upon by the board and the person filing the appeal. In any such action, the board shall not exercise its independent judgement on the evidence but shall only determine whether the decision of the lead agency is supported by substantial evidence in the light of the whole record. If the board determines the decision of the lead agency is not supported by substantial evidence in the light of the whole record, it shall remand the appeal to the lead agency and the lead agency shall schedule a public hearing to reconsider its action.

2776. No person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall be required to secure a permit pursuant to the provisions of this chapter as long as such vested right continues; provided, however, that no substantial changes may be made in any such operation except in accordance with the provisions of this chapter. A person shall be deemed to have such vested rights if, prior to January 1, 1976, he has, in good faith and in reliance upon a permit or other authorization, if such permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary therefore. Expenses incurred in obtaining the enactment of an ordinance in relation to a particular operation or the issuance of a permit shall not be deemed liabilities for work or materials.

A person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall submit to the lead agency and receive, within a reasonable period of time, approval of a reclamation plan for operations to be conducted after January 1, 1976, unless a reclamation plan was approved by the lead agency prior to January 1, 1976, and the person submitting the plan has accepted responsibility for reclaiming the mined lands in accordance with the reclamation plan.

Nothing in this chapter shall be construed as requiring the filing of a reclamation plan for, or the reclamation of, mined lands on which surface mining operations were conducted prior to January 1, 1976.

2777. Amendments to an approved reclamation plan may be submitted detailing proposed changes from the original plan. Substantial deviations from the original plans shall not be undertaken until such amendment has been filed with, and approved by, the lead agency.

2778. Reclamation plans, reports, applications, and other documents submitted pursuant to this chapter are public records, unless it can be demonstrated to the satisfaction of the lead agency that the release of such information, or part thereof, would reveal production, reserves, or rate of depletion entitled to protection as proprietary information. The lead agency shall identify such proprietary information as a separate part of the application. Proprietary information shall be made available only to the State Geologist and to persons authorized in writing by the operator and by the owner.

A copy of all reclamation plans, reports, applications, and other documents submitted pursuant to this chapter shall be furnished to the State Geologist by lead agencies on request.

2779. Whenever one operator succeeds to the interest of another in any incompleted surface mining operation by sale, assignment, transfer, conveyance, exchange or other means, the successor shall be bound by the provisions of the approved reclamation plan and the provisions of this chapter.

Article 6. Areas of Statewide or Regional Significance

2790. After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may by regulation adopted after a public hearing designate specific geographic areas of the state as areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the state policy and shall indicate the reason for which the particular area designated is of significance to the state or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area.

2791. The Board shall seek the recommendations of concerned federal, state, and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals in the identification of areas of statewide and regional significance.

2792. Neither the designation of an area of regional or statewide significance nor the adoption of any regulations for such an area shall in any way limit or modify the rights of any person to complete any development that has been authorized pursuant to Part 2 (commencing with Section 11000) of Division 4 of the Business and Professions Code, pursuant to the Subdivision Map Act (Division 2 (commencing with Section 66410) of Title 7 of the Government Code), or by a building permit or other authorization to commence development, upon which such person relies and has changed his position to his substantial detriment, and, which permit or authorization was issued prior to the designation of such area pursuant to Section 2790. If a developer has by this action taken in reliance upon prior regulations obtained vested or other legal rights that in law would have prevented a local public agency to abridge those rights.

2793. The board may by regulation adopted after a public hearing, terminate, partially or wholly, the designation of any area of statewide or regional significance on a finding that the direct involvement of the board is no longer required. (State Statutes, Ch. 9, Div. 2, P.R.C.)

Chapter IV

Noise

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1.0 INTRODUCTION

The Technical Reference Document is a supplement to the Policy Document of the Noise Element of the General Plan which provides background information concerning the methods and data used in the preparation of the Noise Element. It is intended that the Technical Reference Document be used by Stanislaus County as a resource when evaluating the noise-related implications of specific development proposals or long-range planning efforts.

2.0 NOISE AND ITS EFFECTS ON PEOPLE

2.1 NOISE ASSESSMENT

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. The descriptors of community noise in current use are the results of many years of effort to translate objective measurements of sound into measures of subjective reaction to noise. Before elaborating on these descriptors, it is useful to discuss some fundamental concepts of sound.

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, now called Hertz (Hz) by international agreement.

The speed of sound in air is approximately 770 miles per hour, or 1,130 feet/second. Knowing the speed and frequency of a sound, one may calculate its wavelength, the physical distance in air from one compression of the atmosphere to the next. An understanding of wavelength is useful in evaluating the effectiveness of physical noise control devices such as mufflers or barriers, which depend upon either absorbing or blocking sound waves to reduce sound levels.

To measure sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised.

The decibel scale uses the hearing threshold as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. Use of the decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. In the range of usual environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighting the frequency response of a sound level measurement device (called a sound level meter) by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. Figure 2-1 illustrates typical A-weighted sound levels due to recognizable sources.

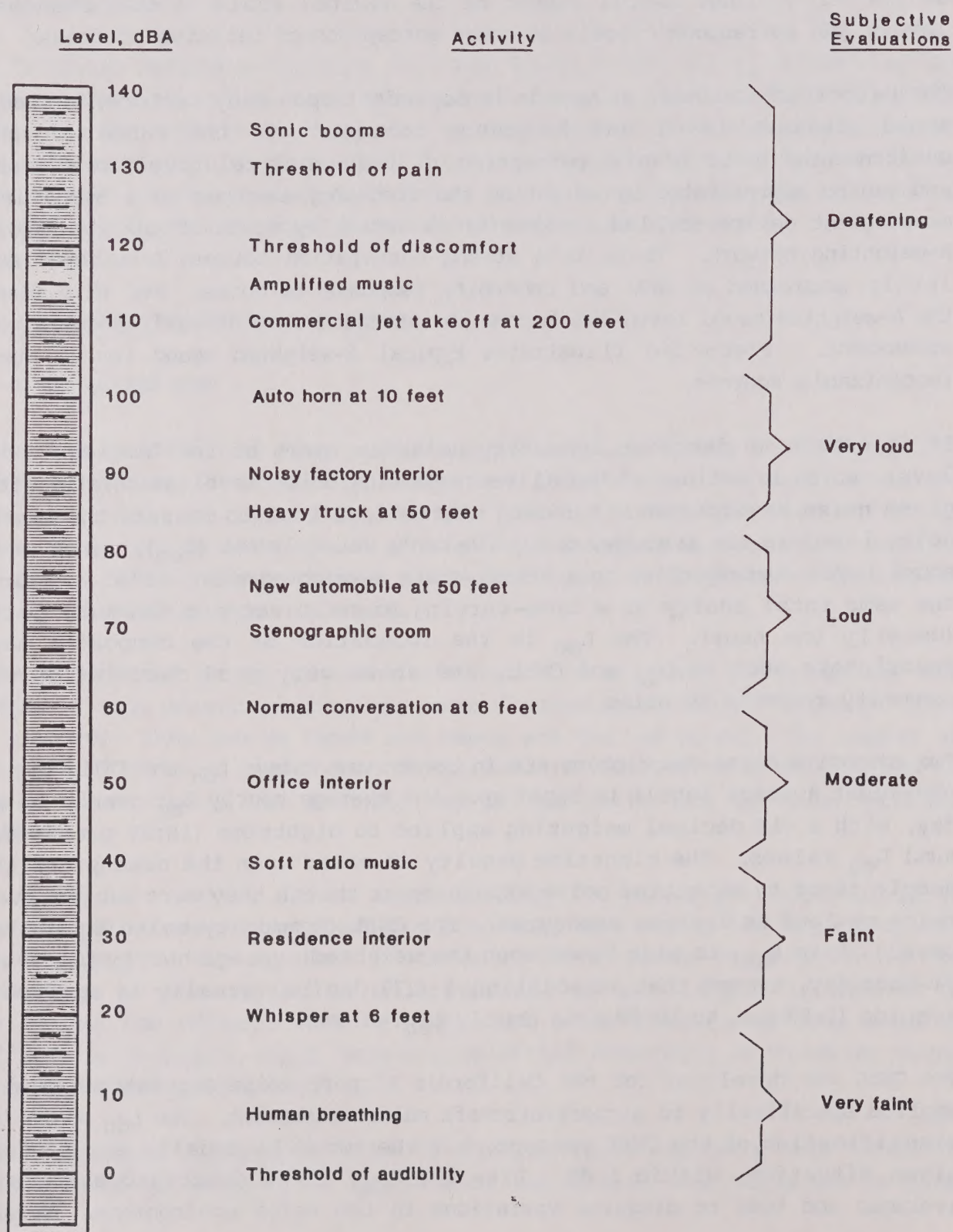
It is common to describe community noise in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which is the sound level corresponding to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptors such as L_{dn} and CNEL, and shows very good correlation with community response to noise.

Two composite noise descriptors are in common use today: L_{dn} and CNEL. The L_{dn} (day-night average level) is based upon the average hourly L_{eq} over a 24-hour day, with a +10 decibel weighting applied to nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} values. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were subjectively twice as loud as daytime exposures. The CNEL (Community Noise Equivalent Level), like L_{dn} , is also based upon the weighted average hourly L_{eq} over a 24-hour day, except that an additional 4.77 decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly L_{eq} values.

The CNEL was developed for the California Airport Noise Regulations, and is applied specifically to airport/aircraft noise assessment. The L_{dn} scale is a simplification of the CNEL concept, but the two will usually agree, for a given situation, within 1 dB. Like the L_{eq} , these descriptors are also averages and tend to disguise variations in the noise environment. Because

Figure 2-1

Examples of Noise Levels



L_{dn} and CNEL presume increased evening or nighttime sensitivity, they are best applied as criteria for land uses where nighttime noise exposures are critical to the acceptability of the noise environment, such as residential developments.

Noise in the community has often been cited as being a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from the interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being is the basis for land use planning policies directed towards the prevention of exposure to excessive community noise levels.

To control noise from existing fixed sources many jurisdictions have adopted community noise control ordinances. Such ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as planning tools if applied to the potential creation of a nuisance, or to potential encroachment of sensitive uses upon noise-producing facilities. Community noise control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

2.2 CRITERIA FOR ACCEPTABLE NOISE EXPOSURES

The State Office of Noise Control (ONC) "Guidelines for the Preparation and Content of Noise Elements of the General Plan", include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The ONC guidelines contain a land use compatibility table which describes the compatibility of different land uses with a range of environmental noise levels in terms of L_{dn} or CNEL. A noise environment of 50 to 60 dB L_{dn} or CNEL is considered to be "normally acceptable" for residential uses according to those guidelines. The ONC recommendations also note that, under certain conditions, more restrictive standards may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 to 10 dBA to reflect lower existing outdoor noise levels.

The U.S. Environmental Protection Agency (EPA) also prepared guidelines for community noise exposure in the publication "Information on the Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety" (Ref.2). These guidelines are based upon assumptions regarding acceptable noise levels which consider occupational noise exposure as well as noise exposure in the home. The guidelines recognize an exterior noise level of 55 dB L_{dn} as a goal to protect the public from hearing loss, activity interference, sleep disturbance and annoyance. The EPA notes, however, that this level is not a regulatory goal, but is a level defined by a negotiated scientific consensus without concern for economic and technological feasibility or the needs and desires of any particular community. The EPA and other governmental agencies have adopted suggested land use compatibility guidelines (Ref.3) which indicate that residential noise exposures of 55 to 65 dB L_{dn} are within acceptable limits.

For control of noise nuisances, a community noise control ordinance is the most appropriate tool. The State Office of Noise Control has prepared a Model Community Noise Control Ordinance (Ref.4) which contains recommended noise standards in terms of "time-weighted" levels in dBA. The time-weighting concept allows discrimination of both short- and long-term noise exposures, and sets allowable levels for each. The Model recommends more stringent standards for residential land uses than for commercial and industrial, with the most stringent standards recommended for "rural suburban" situations. The primary noise standard for rural residential uses is 50 dBA in the daytime hours (7 a.m. to 10 p.m.), and 40 dBA at night. The standard is expressed in terms of the level exceeded for 30 minutes of an hour, equivalent to the median level, or L_{50} . This ordinance format is successfully applied in many California cities and counties.

The U.S. Environmental Protection Agency has also prepared a Model Community Noise Control Ordinance (Ref.5), using the "Equivalent A-weighted Sound Level" (L_{eq}) as the means of defining allowable noise level limits. The EPA model contains no specific recommendations for local noise level standards, but reports a range of L_{eq} values as adopted by various local jurisdictions. The mean daytime noise standard reported by the EPA is 56.75 dBA (L_{eq}); the mean nighttime noise standard is 51.76 dBA (L_{eq}). This ordinance format has been successfully applied by the City and County of San Diego.

In addition to the A-weighted noise level, other factors should be considered in establishing criteria for noise sensitive land uses. For example, sounds with noticeable tonal content such as whistles, horns, or droning or high-pitched sounds may be more annoying than the A-weighted sound level alone will suggest. Many noise standards apply a penalty, or correction, of 5 dBA to such

sounds. The effects of unusual tonal content will generally be more of a concern at nighttime, when residents may notice the sound in contrast to previously-experienced background noise.

Because many rural residential areas experience very low noise levels, residents may express concern about the loss of "peace and quiet" due to the introduction of a sound which was not audible previously. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the relative loss of "peace and quiet" is the inevitable result of land use or activity changes in such areas. Audibility of a new noise source and/or increases in noise levels within recognized acceptable limits are not usually considered to be significant noise impacts, but these concerns should be addressed and considered in the planning and environmental review processes.

Table 2-1 is commonly used to show expected public reaction to changes in environmental noise levels. This table was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise, or to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dBA, the usual range of voice and interior noise levels. It is probably not directly applicable to public perception of identifiable intrusive noise sources in very quiet environments because of the difference in frequency content between background noise sources and intrusive sounds, as well as the fact that the absolute amount of energy required to make a given change in sound pressure level is much smaller at low noise levels than at higher levels. Table 2-1 should therefore only be applied in a general manner to show the relationship between changes in sound energy, sound pressure levels and subjective reaction.

The comparisons of subjective reaction outlined in Table 2-1 are not applicable to noise exposures which are very quiet or very loud. For example, a whisper which is increased by 10 decibels, e.g., from 20 dBA to 30 dBA, remains a whisper, and would still be described as quiet. In contrast, an increase in the noise level of a diesel locomotive from 90 dBA to 100 dBA would be a change from a loud noise to a very loud noise. Thus the subjective reaction to a 10 dBA change in either case may be different, even though the change in level is the same.

TABLE 2-1

SUBJECTIVE REACTION TO CHANGES IN NOISE LEVELS OF SIMILAR SOURCES

Change in Sound Pressure Level, dBA	Relative Increase In Acoustical Energy	Subjective Reaction

1	1.26 times	Minimum Detectable Change (Lab)
3	2.0 times	Usually Noticeable Change
5	3.2 times	Definitely Noticeable Change
10	10.0 times	Twice (or half) as Loud as Before

Sources: Various, reported by Brown-Buntin Associates

3.0 EXISTING AND FUTURE NOISE ENVIRONMENT

3.1 Overview of Sources

Based on discussions with County of Stanislaus Department of Planning and Community Development staff regarding potential major noise sources and field studies conducted by BBA, it was determined that there are a number of potentially significant sources of community noise within Stanislaus County. These sources include traffic on state highways and major County roadways, railroad operations, airport operations and industrial activities. Specific noise sources selected for study are discussed in the following sections. Figure 3-1 shows the generalized locations of major noise sources selected for study, and for which generalized L_{dn} contours have been prepared.

3.2 Methods and Noise Exposure Maps

Analytical noise modeling techniques in conjunction with actual field noise level measurements were used to develop generalized L_{dn} or CNEL contours for major sources of noise within the unincorporated areas of Stanislaus County for existing (1986) and future (2000) conditions. CNEL contours for operations at the Oakdale Municipal Airport, Patterson Airport, Turlock



Legend

- Roadway
- - - Railroad
- ★ Airport
- Industrial

FIGURE 3-1 MAJOR NOISE SOURCES

Airport, Modesto City County Airport and the Crows Landing Naval Auxiliary Landing field were derived from existing airport Master Plan or Air Installation Compatible Use Zone (AICUZ) reports as available.

Analytical noise modeling techniques generally make use of source-specific data including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. Accepted analytical methods have been developed for a number of environmental noise sources including roadways, railroad line operations, railroad yard operations, industrial plants and aircraft/airport operations. Such methods will produce reliable results as long as data inputs and assumptions are valid for the sources being studied. The analytical methods used in this report closely follow recommendations made by the State Office of Noise Control, and were supplemented where appropriate by field-measured noise level data to account for local conditions.

Noise exposure contours for major sources of noise within the unincorporated areas of Stanislaus County are contained within Appendix C of this report. Noise exposure maps have been prepared for each of the unincorporated communities or areas of concentrated development within the County. Noise exposure in rural areas removed from these communities may be derived from the Tables and discussions within the following text which describe the distance to L_{dn} (or CNEL) contours for traffic, railroad, airport and industrial or other stationary noise sources. It should be noted that the L_{dn} or CNEL contours shown in Appendix C or described in the text of this report are based upon annual average conditions, and are not intended to be site-specific where local topography, vegetation or intervening structures may significantly affect noise exposure at a particular location. It is intended that the noise exposure maps be used by Stanislaus County during the implementation of the Noise Element through the project review and long range planning processes.

3.3 State Highways and Major County Roadways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop L_{dn} contours for the state highways and major county roadways within the unincorporated areas of Stanislaus County. The FHWA Model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including Caltrans. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks, (3 axles or greater) with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver and the acoustical characteristics of the site. The FHWA

Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within plus or minus 1.5 dB. To predict L_{dn} values it is necessary to determine the hourly distribution of traffic for a typical 24-hour day and adjust the traffic volume input data to yield an equivalent hourly traffic volume. BBA experience with the use of the FHWA Model has indicated that the model generally overpredicts traffic noise exposure by 1-2 dB in areas 100-200 feet from the center of the roadway, and that its use will generally result in a conservative estimate of traffic noise exposure.

Traffic data representing annual average traffic volumes and truck mix for existing (1986) and future (2000) conditions were obtained from Caltrans and the Stanislaus County Department of Public Works. Estimates of the day/night distribution of traffic for a typical 24-hour period were obtained from BBA file data for similar roadways in predominantly rural areas. These data, along with the FHWA Model were used to calculate the distance between the center of roadways and the 60 dB L_{dn} contours for existing and projected future traffic conditions. Traffic data and calculated distances to L_{dn} contours are summarized in Table 3-1. Table 3-1 is subdivided into individual communities, rural state highways and rural county roadways. The approximate locations of the 60 dB L_{dn} contours for existing and projected future traffic conditions are shown on maps for each community in Appendix C. It should be noted that since calculations did not take into consideration shielding caused by local buildings or topographical features, the distances reported in Table 3-1 and depicted in Appendix C should be considered as worst-case estimates of noise exposure along roadways in the county. Noise exposure behind the first row of houses or other types of buildings along a roadway will typically be reduced by 5-15 dB.

Railroads

Railroad operations in Stanislaus County consist of high speed mainline operations on the Atchison, Topeka and Santa Fe (A.T. & S.F.) Railway and Southern Pacific Transportation Company (SPTCo.) Railroad and low speed mainline and switching operations on the A.T. & S.F. Railway, SPTCo. Railroad, Sierra Railroad, Modesto and Empire Traction Company Railroad and Tidewater Southern Railroad.

In order to quantify noise exposure, as defined by L_{dn} , for frequent, high speed operations on the A.T. & S.F. Railway and SPTCo. Railroad, the analytical methods developed in 1973 by Wyle Laboratories (Wyle Laboratories Report WCR-73-5) for railroad line operations were used. The Wyle Methodology considers

TABLE 3-1

TRAFFIC DATA AND CALCULATED NOISE LEVELS

Roadway Description	1986 AADT	2000 AADT	D/N Split	% MT	% HT	Speed (MPH)	Ldn @ 100' (dB)		Distance (Feet) to 60 dB Ldn	
							1986	2000	1986	2000
Valley Home										
Valley Home Rd	1410	2780	90/10	3.5	3.0	55	57.2	60.1	65	102
Salida										
SR 99	35460	63930	84/16	3.0	14.7	55	76.2	78.7	1196	1771
SR 219	6260	11280	84/16	3.8	4.0	55	65.3	67.9	226	334
Finney Rd	1300	2570	90/10	3.5	3.0	35	52.7	55.6	32	51
Broadway	1850	3670	90/10	3.5	3.0	25	51.3	54.3	26	42
Salida Blvd	1910	3780	90/10	3.5	3.0	35	54.3	57.3	42	66
Sisk Rd	1145	2270	90/10	3.5	3.0	35	52.1	55.1	30	47
Del Rio Area										
McHenry (N of 108)	11380	22530	90/10	3.5	3.0	55	66.2	69.2	260	411
Ladd Rd	3230	6390	90/10	3.5	3.0	55	60.8	63.7	112	177
Knights Ferry										
SR 108-120	10900	19620	84/16	3.8	3.8	55	67.6	70.2	322	47
La Grange										
SR 132	1100	2070	84/16	5.6	6.4	35	55.3	58.0	48	74
La Grange Rd	3210	6360	90/10	3.5	3.0	55	60.7	63.7	112	177
East of Oakdale Area										
SR 108-120	11470	20650	84/16	3.8	3.8	55	67.8	70.4	333	492
Westley										
SR 33	4590	8260	84/16	4.4	5.2	35	60.7	63.3	112	166
Grayson/Howard Rd	1340	2650	90/10	3.5	3.0	35	52.8	55.8	33	52
Grayson										
Grayson Rd	3118	6170	90/10	3.5	3.0	35	56.5	59.4	58	92
River Rd	1482	2930	90/10	3.5	3.0	35	53.2	56.2	35	56

TABLE 3-1 (Continued)

Roadway Description	1986 AADT	2000 AADT	D/N Split	% MT	% HT	Speed (MPH)	Ldn @ 100' (dB)		Distance (Feet) to 60 dB Ldn	
							1986	2000	1986	2000
Crows Landing										
SR 33	4590	8260	84/16	4.4	5.2	35	60.7	63.3	112	166
Fink/Crows Landing Rd	5600	11090	90/10	10.0	20.0	35	59.0	68.2	86	354
Keyes										
SR 99	38590	69460	84/16	2.9	15.9	55	76.8	79.3	1315	1946
Faith Home Rd	1000	1980	90/10	3.5	3.0	55	55.7	58.6	51	81
Keyes Rd	2903	5750	90/10	3.5	3.0	55	60.3	63.3	105	165
Empire										
SR 132	10060	19930	84/16	5.7	6.3	35	64.9	67.8	211	332
Santa Fe Ave	6260	12390	90/10	3.5	3.0	35	59.5	62.5	92	146
Church St	4780	9460	90/10	3.5	3.0	25	55.4	58.4	50	78
Hickman										
Hickman Rd	4410	8730	90/10	3.5	3.0	55	62.1	65.1	138	218
Lake Rd	2430	4800	90/10	3.5	3.0	35	55.4	58.3	49	77
Denair										
Santa Fe Ave	4000	7920	90/10	3.5	3.0	35	57.5	60.5	69	108
Main St	4860	9630	90/10	3.5	3.0	25	55.5	58.5	50	79
Monte Vista Ave	2511	4970	90/10	3.5	3.0	25	52.6	55.6	32	51
Zeering Rd	1830	3620	90/10	3.5	3.0	25	51.3	54.2	26	41
Gratton Rd	2980	5900	90/10	3.5	3.0	25	53.4	56.4	36	57
Rural State Highways										
SR 165 (Co Line to SR 99)	11260	20280	84/16	4.5	5.5	55	68.6	71.2	376	556
SR 219 (Salida to SR 108)	8240	14830	84/16	3.9	3.4	55	66.2	68.8	260	384
SR 33 (Co Line to Co Line)	4590	8260	84/16	4.4	5.2	55	64.6	67.1	202	299
SR 99 (Co Line to Co Line)	45890	82600	84/16	2.8	14.4	55	77.2	79.8	1402	2074
I-5 (Co Line to Co Line)	16690	30040	84/16	4.2	20.9	55	74.2	76.7	881	1303
SR 108 (SR 219 to SR 120)	14600	26280	84/16	3.7	1.1	55	67.2	69.8	305	451
SR 120 (Co Line to Co Line)	11470	20650	84/16	3.8	3.8	55	67.8	70.4	333	492
SR 4 (Co Line to Co Line)	2090	3750	84/16	3.6	1.5	55	59.1	61.6	87	128
SR 132 (W of Modesto)	8870	15960	84/16	8.6	15.6	55	70.8	73.3	523	773
SR 132 (E of Modesto)	10060	19930	84/16	5.7	6.3	55	68.6	71.6	375	592

TABLE 3-1 (Continued)

Roadway Description	1986	2000	D/N	% MT	% HT	Speed (MPH)	Ldn @ 100' (dB)		Distance (Feet)	
	AADT	AADT	Split				1986	2000	to 60 dB Ldn	
							1986	2000	1986	2000
Rural County Roads										
Claribel Rd										
(McHenry to Coffee)	8140	16110	90/10	3.5	3.0	55	64.8	67.7	208	328
(Coffee to Oakdale)	5510	10910	90/10	3.5	3.0	55	63.1	66.1	161	253
(Oakdale to Albers)	1540	3040	90/10	3.5	3.0	55	57.5	60.5	69	108
Hatch Rd										
(Carpenter to Modesto)	3890	7690	90/10	3.5	3.0	55	61.6	64.5	127	201
(Modesto CL to Mitchell)	15000	29700	90/10	3.5	3.0	55	67.4	70.4	313	494
(Mitchell to Santa Fe)	4630	9170	90/10	3.5	3.0	55	62.3	65.3	143	225
Grayson Rd										
(I-5 to Crows Landing)	3120	6170	90/10	3.5	3.0	55	60.6	63.6	110	173
Keyes Rd										
(Carpenter to Hickman)	2903	5740	90/10	3.5	3.0	55	60.3	63.3	105	165
West Main										
(Turlock to I-5)	7360	14570	90/10	3.5	3.0	55	64.3	67.3	195	307
Carpenter Rd										
(West Main to Grayson)	3860	7640	90/10	3.5	3.0	55	61.5	64.5	127	200
(Grayson to Modesto)	5540	10970	90/10	3.5	3.0	55	63.1	66.1	161	254
Crows Landing Rd										
(Crows Landing to Modesto)	6620	13100	90/10	3.5	3.0	55	63.9	66.8	181	286
McHenry Ave										
(Ladd Rd to Co Line)	11380	22530	90/10	3.5	3.0	55	66.2	69.2	260	411
Claus Rd										
(SR 132 to Claribel)	8550	16940	90/10	3.5	3.0	55	65.0	68.0	215	339
(Claribel to Patterson)	3700	7320	90/10	3.5	3.0	55	61.4	64.3	123	194
Coffee Rd										
(Modesto to Patterson)	2640	5220	90/10	3.5	3.0	55	59.9	62.9	98	155
Oakdale Rd										
(Patterson to Claribel)	5770	11420	90/10	3.5	3.0	55	63.3	66.3	166	261
(Claribel to Modesto)	15000	29700	90/10	3.5	3.0	55	67.4	70.4	313	494
Tully Rd										
(Ladd to Bangs)	4480	8860	90/10	3.5	3.0	55	62.2	65.1	140	220
Mitchell Rd										
(SR99 to Hatch)	20000	39600	90/10	3.5	3.0	55	68.7	71.7	379	598
(Hatch to Modesto CL)	25000	49500	90/10	3.5	3.0	55	69.7	72.6	440	694

TABLE 3-1 (Continued)

TABLE 3-1 (Continued)

Roadway Description	1986 AADT	2000 AADT	D/N Split	% MT	% HT	Speed (MPH)	Ldn @ 100' (dB)		Distance (Feet)	
							1986	2000	to 60 dB Ldn 1986	2000
Rural County Roads (Continued)										
Santa Fe Ave (Empire to Co Line)	4000	7920	90/10	3.5	3.0	55	61.7	64.7	130	205
Geer Rd (Turlock to SR 132)	5000	9900	90/10	3.5	3.0	55	62.7	65.6	151	237
Albers Rd (SR 132 to Oakdale)	7500	14850	90/10	3.5	3.0	55	64.4	67.4	197	311
Hickman Rd (West Main to Waterford)	4410	8730	90/10	3.5	3.0	55	62.1	65.1	138	218
Valley Home Rd (SR 120 to Co Line)	1410	2780	90/10	3.5	3.0	55	57.2	60.1	65	102

Note: Distances are from the center of the roadway.

Sources: Stanislaus County Department of Public Works
Caltrans
Brown-Buntin Associates

the composition of trains, frequency of operation, day/night distribution of operations, track characteristics and speed of trains in the calculation of L_{dn} .

In order to provide a comparison of measured and calculated noise exposure for railroad operations within Stanislaus County, noise monitoring was conducted at various locations along the above-described railroads. Measurement equipment consisted of Bruel & Kjaer (B&K) Type 2218 and 2230 precision sound level meters equipped with B&K Type 4165 and 4155 1/2" microphones, respectively. The measurement systems were calibrated in the field, and comply with all applicable requirements for ANSI Type I sound level meters.

Measurements along the A.T. & S.F. Railway were conducted December 3, 1986 near the Milnes Road grade crossing. Two freights and two Amtrak trains were monitored at this location, at approximately 100 feet from the center of the tracks. The maximum noise levels from the horn for the freights ranged from 85 to 95 dBA with Sound Exposure Levels (SEL's) for the entire passby ranging from 95.4 to 103.2 dB. Such levels are somewhat less than have been measured elsewhere along the A.T. & S.F. Railway in the San Joaquin Valley. This most likely may be explained by the small sample size for the present study and the apparent minimal use of the horn at the Milnes Road grade crossing. The Amtrak trains generated maximum levels from the horn of 90-100 dBA with SEL's of 95.9 to 104.5 dB. Such levels are typical of Amtrak operations monitored by BBA elsewhere in the San Joaquin Valley.

Noise measurements of freight trains along the SPTCo. Railroad mainline were conducted on November 4 and December 5, 1986 in the vicinity of the Taylor Road and Monte Vista Avenue grade crossings. Maximum levels at 100 feet ranged from 94-96 dBA for the horn with SEL's of 105.2 - 105.3. Such levels are typical of other similar SPTCo. freights monitored by BBA in the San Joaquin Valley, and are also similar to the reference levels used by the Wyle Methodology.

For branchline railroad operations, noise measurements were conducted at various locations. For Sierra Railroad operations, measurements were conducted during railroad switching movements in the Oakdale area. Maximum noise levels from the horn were approximately 102 dBA at 100 feet. Maximum noise levels from the locomotives and cars ranged from 70-90 dBA at the same location. Noise levels from the SPTCo. Railroad branchline operation on the west side of Stanislaus County were measured on December 2, 1986 near Westley. For a slow-moving 32 car freight train with 2 locomotives, the maximum noise level and SEL were 82 dBA and 95.4 dB at 100 feet, respectively. Tidewater Southern Railroad operations were monitored near Del Rio on December 2, 1986

and adjacent to the North Modesto Industrial Park on January 13, 1987. Both trains monitored were moving slowly and were using the warning horn while approaching and crossing a roadway. Maximum noise levels from the horn ranged from 97-106 dBA at 100 feet. SEL's at the same location ranged from 103.5 - 111.5 dBA. Modesto and Empire Traction Company operations were monitored at various locations along the mainline on January 13 and 14, 1987. Maximum noise levels from the horn at 100 feet from the center of the track ranged from 92-96 dBA. SEL's for the entire train passby at the same distance ranged from 84-85 dBA without the horn to 95-105 dBA with the horn.

Following is a description of the operation of each railroad serving Stanislaus County. Estimates of noise exposure as defined by L_{dn} or maximum levels for single events are discussed in the text. For railroads where the nature of the operation results in significant noise exposure, as defined by L_{dn} , the 60 dB L_{dn} contours for existing (1986) and projected future (2000) operations are shown on the noise contour maps in Appendix C.

A.T. & S.F. Railway

Operations on the A.T. & S.F. Railway in Stanislaus County occur on the mainline which runs through Riverbank, Hughson, Empire and Denair, and on a branchline which connects the mainline at Riverbank with the Sierra Railroad in Oakdale. According to the Chief Dispatcher's office in Fresno, there are presently an average of 22 freight and 4 passenger trains per day on the mainline and 1 roundtrip per day, 5 days per week on the Oakdale branchline. Operations on the mainline are expected to increase to 33 freight and 6 passenger trains per day by the year 2000. Maximum speed on the mainline is 70 mph for freights and 79 mph for passenger trains. Freight trains are generally evenly distributed throughout the day and night. Based upon the above-stated level of operations and the Wyle Methodology, the distance from the center of the mainline to the 60 dB L_{dn} contour is approximately 680 feet for existing operations and approximately 820 feet for projected future operations. Due to relatively infrequent operations along the Oakdale branchline, noise exposure exceeding 60 dB L_{dn} is confined to the railroad right of way, although noise levels generated by the horn would be expected to result in significant short-term noise impacts during individual train movements.

Source: Chief Dispatcher, A.T. & S.F. Railway, Fresno, Telephone interview, November, 1986.

SPTCo. Railroad

Operations on the SPTCo. Railroad in Stanislaus County include operations on the mainline, which passes through Salida, Modesto, Ceres, Keyes and Turlock and operations on the branchline on the west side of the county, which passes through Westley, Patterson, Crows Landing and Newman. According to the Chief Dispatcher's office in Tracy, there are approximately 20 freight train movements per day on the mainline and 1 train movement per day on the branchline. According to the same source, trains are more or less evenly distributed over the day and night on the mainline, and branchline operations generally occur during the daytime hours. Maximum train speeds range from 25-35 mph on the branchline to 50-70 mph on the mainline. Estimates of future mainline or branchline operations were not available from the railroad although approximately 30 freight trains per day would occur on the mainline if the same expected rate of growth reported by the A.T. & S.F. Railway were applied. Using the above-described railroad operational data and the Wyle Methodology, the calculated distance from the center of the mainline to the 60 dB L_{dn} contour is approximately 660 feet for existing (1986) operations and approximately 800 feet for estimated future operations. Due to relatively infrequent operations on the branchline, noise exposure exceeding 60 dB L_{dn} is confined to the railroad right of way, although the use of the horn at grade crossings would be expected to result in significant short term impacts for persons located near the tracks.

Source: Chief Dispatcher's offices, SPTCo. Railroad, Fresno and Tracy, telephone interview, October, 1986.

Modesto and Empire Traction Company

The Modesto and Empire Traction Company is a short line railroad which conducts switching operations between the SPTCo. railroad in Modesto and the A.T. & S.F. Railway in Empire. A typical train consists of 2 locomotives (70 ton G.E.) and 18-20 cars. Train speed is limited to approximately 5 to 15 mph, and trains typically operate 24 hours per day and 7 days per week. It is estimated that trains make a total of 8-10 roundtrips on the mainline per day, although this can vary due to local industry demands. Based upon the above-described operational and noise level data, the calculated distance from the center of the tracks to the 60 dB L_{dn} contour is approximately 530 feet in the vicinity of grade crossings and 45 feet in areas when the horn is not used. Since the horn is used at grade crossings and during switching movements along most of the mainline, a worst-case distance of 530 feet from the tracks has been assumed for the 60 dB L_{dn} contour shown in Appendix C. It should be

noted that due to the industrial nature of the area served by the railroad, few residential or other noise sensitive land uses are impacted by this operation.

Source: Mr. Ken Beard, Vice President, Modesto and Empire Traction Company, telephone interview, December 16, 1986.

Sierra Railroad

The Sierra Railroad operates between Oakdale and Sonora 3 times per week on Monday, Wednesday and Friday. Movements consist of assembling trains before departing for Sonora and breaking them down for pickup by the A.T. & S.F. upon arrival from Sonora. Although railroad noise levels (especially the horn) are clearly audible in areas of the county adjacent to the tracks, they do not occur frequently enough or during times of the day which would be expected to result in significant activity interference or sleep disturbance. Noise exposures exceeding 60 dB L_{dn} for this operation are confined to areas located within the railroad right of way.

Source: Mr. Bob Woods, Manager, Sierra Railroad, Oakdale, telephone interview, April 22, 1986.

Tidewater Southern Railroad

The Tidewater Southern Railroad is a branchline operation of the Union Pacific Railroad. The line generally runs north-south through Stanislaus County, passing through Del Rio, Modesto and Turlock. Approximately 1 or 2 trains per day utilize the line, mostly during the daylight hours. Operations occasionally occur at night. Typical trains consist of 2 locomotives and 50-90 cars. Average speed is 30 mph. There are no present plans for expanded operations in the future. Based upon the above-described operational and noise level data, the distance from the center of the tracks to the 60 dB L_{dn} contour is approximately 150 feet in the vicinity of grade crossings. The 60 dB L_{dn} is confined to the railroad right-of-way in other areas. Noise levels generated by the horn would be expected to result in significant single-event impacts for persons who reside near a grade crossing.

Source: Mr. Hart, Terminal Superintendent, Union Pacific Railroad, Stockton, California, telephone interview, December 16, 1986.

3.5 Airports

Modesto City-County Airport

The Modesto City-County Airport is the only air carrier airport in Stanislaus County. There are two runways in a 28L and R - 10L and R configuration. The instrument landing runway is 28R. Aircraft arrive and depart on Runways 28L and R approximately 90% of the time on an annual average basis. There are presently approximately 130,000-140,000 annual operations at the airport with approximately 24-30 daily operations by commuter aircraft such as the Embraer Bandeirante, Shorts 360 and Fairchild-Swearingen Metroliner. The airport is occasionally used by turbo jet and turbo fan corporate aircraft (bizjets), and military aircraft (usually C-135's or T-37's) occasionally make practice instrument approaches (down to a minimum of 500' AGL) to the airport.

The Airport Master Plan was completed in 1977. It is anticipated by the Airport Manager that the Master Plan will be updated within the next year. CNEL contours prepared as part of the 1977 Master Plan included operations by heavy jet air carrier aircraft (B727 and B737) which do not presently use the airport. The 1977 Master Plan contours are shown in Figure 3-2.

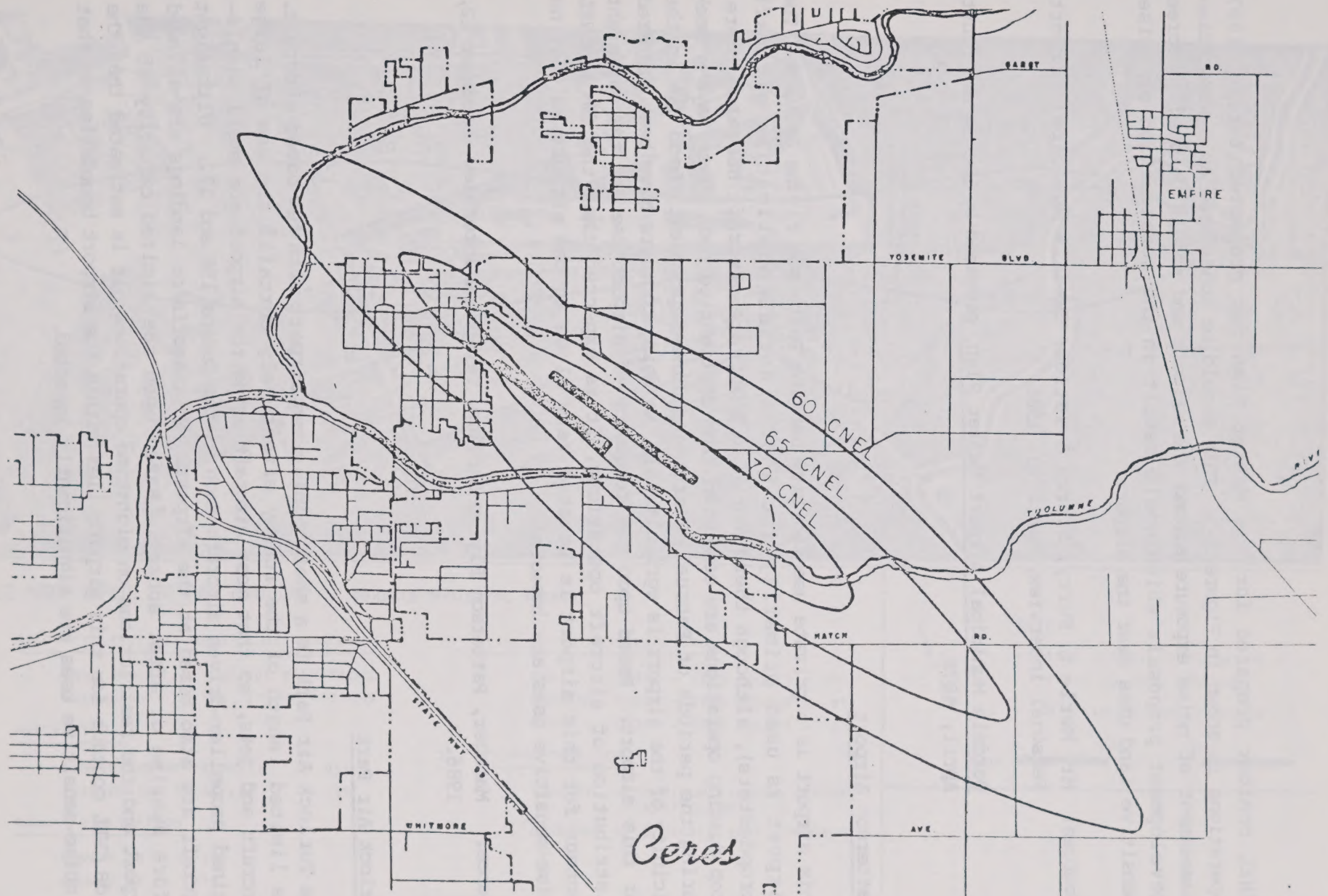
It is recommended that noise exposure information developed during the forthcoming Master Plan Update be incorporated into this Noise Element, and that Stanislaus County (and the City of Modesto) take the necessary steps to ensure no further encroachment of noise sensitive land uses in areas where existing or projected future noise exposure exceeds 60 dB CNEL.

Source: Mr. R.C. Smith, Airport Manager, Modesto City-County Airport, Telephone interview, December 16, 1986.

Oakdale Municipal Airport

The Oakdale Municipal Airport is a general aviation facility with a single 3200 foot long runway. An Airport Master Plan completed in 1978 projected 100,000 annual operations by the year 1997. According to local operators, the actual number of operations has been running somewhat less than projected. Current operations are comparable to the number projected for the year 1982. Most operations are by single engine and light twin engine aircraft, although crop dusters and corporate jet aircraft occasionally use the facility. Approximately 75% of all operations are to the west on Runway 28. The 60 dB

Figure 3-2: CNEL Contours For Modesto City-County Airport



Source: Modesto City-County Airport Master Plan(1977)

CNEL contour prepared for the Master Plan for projected future (1997) operations is shown in Figure 3-3. This should be considered as a worst-case assessment of noise exposure around the airport and should be used to screen development proposals which would result in the construction of noise-sensitive land uses near the airport.

Sources: Mr. Merle L. Furry, Sierra Aviation, Oakdale Municipal Airport, Personal interview, April 23, 1986.

Oakdale Municipal Airport Master Plan, prepared by Hodges and Shutt, April, 1978.

Patterson Airport

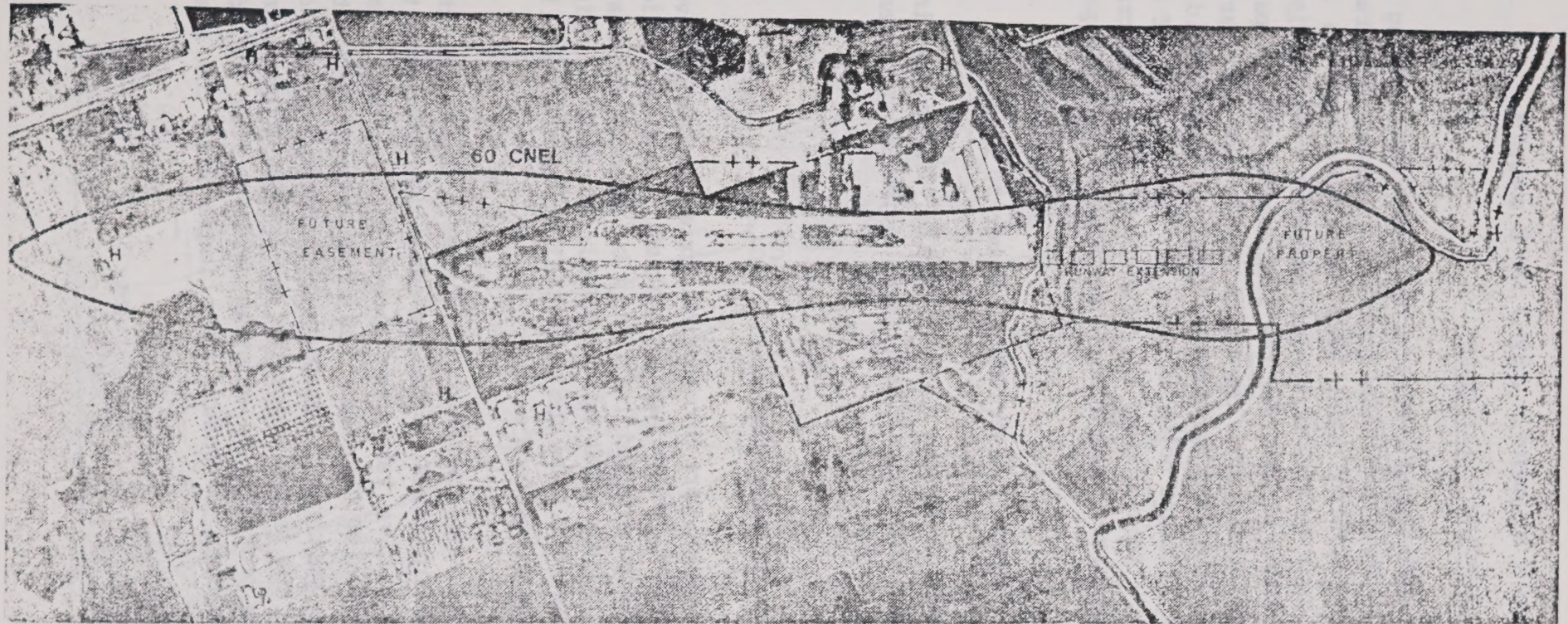
This airport is a private use facility serving Patterson Flying Service. The airport is used primarily for 5 or 6 aerial application aircraft (cropdusters), although there are also 5 private aircraft hangared there. Crop dusting operations are conducted from daylight to noon seven days a week during the periods of February-March and June-September. Land use in the vicinity of the airport is agricultural. No noise contours have been prepared for this airport. Based upon the frequency of airport use and the day/night distribution of aircraft operations, it is expected that the 60 dB CNEL contour for this airport is located very close to the airport so that no noise-sensitive uses are impacted.

Source: Manager, Patterson Flying Service, Telephone interview, December 12, 1986.

Turlock Air Park

The Turlock Air Park is a short public use airport with few based aircraft. The limited length of the runway effectively curtails the use of large aircraft and jets, so that most aircraft using the airport are small single-engined propeller-driven aircraft such as the Cessna 150 and 172. Ultralight aircraft are also based at the airport. No takeoffs or landings are allowed before sunrise or after sunset. Based upon the limited capacity of the airport and the restrictions on nighttime operations, it is estimated that the 60 dB CNEL contour for this airport lies within the airport boundaries so that no noise-sensitive uses are significantly impacted.

Figure 3-3: CNEL Contours For Oakdale Municipal Airport



NOISE MODEL INPUTS FOR CNEL CONTOURS - OAKDALE MUNICIPAL AIRPORT

1. ACTIVITY LEVELS (TAKEOFFS AND LANDINGS)

1997 ANNUAL - 100,000 OPERATIONS
AVERAGE DAY - 275 OPERATIONS

2. AIRCRAFT MIX

SINGLE-ENGINE PROPELLER - 95%
TWIN-ENGINE PROPELLER - 5%

3. RUNWAY UTILIZATION

RUNWAY 28 - 75%
RUNWAY 10 - 25%

4. TIME OF DAY DISTRIBUTION

DAY (0700 - 1800 HOURS) - 90%
EVENING (1800 - 2200 HOURS) - 8%
NIGHT (2200 - 0700 HOURS) - 2%

5. FLIGHT PROFILES

TAKEOFF - MAXIMUM TAKEOFF WEIGHT, BEST CLIMB
LANDING - 3 DEGREE VASI APPROACH

NOTE

- ◻ 1997 TRAFFIC DOES NOT GENERATE A 65 CNEL CONTOUR
- ◻ H = SINGLE FAMILY RESIDENCE

SCALE 0 500 1000 FEET

Source: Oakdale Municipal Airport Master Plan(1978)

Crow's Landing Naval Auxiliary Landing Field (NALF)

Unlike an airport, the NALF has no based aircraft, but provides landing and touch-and-go training for U.S. Navy and NASA aircraft. Noise contours in terms of the Composite Noise Rating (CNR) were developed for an Air Installation Compatible Use Zone (AICUZ) study published in February 1977. These contours were updated in terms of CNEL for the 1981 Master Plan prepared for the facility by the Western Division of the Naval Facilities Engineering Command as shown in Figure 3-4. The 1981 Master Plan CNEL contours should be used as a general indicator of aircraft noise exposure in the vicinity of the NALF until updated by the Navy. According to the NALF Tower Staff, aircraft noise complaints have been received from about 6 residents over the past several years.

Source: Bob Eoff, Tower Chief, Personal interview, December 3, 1986.

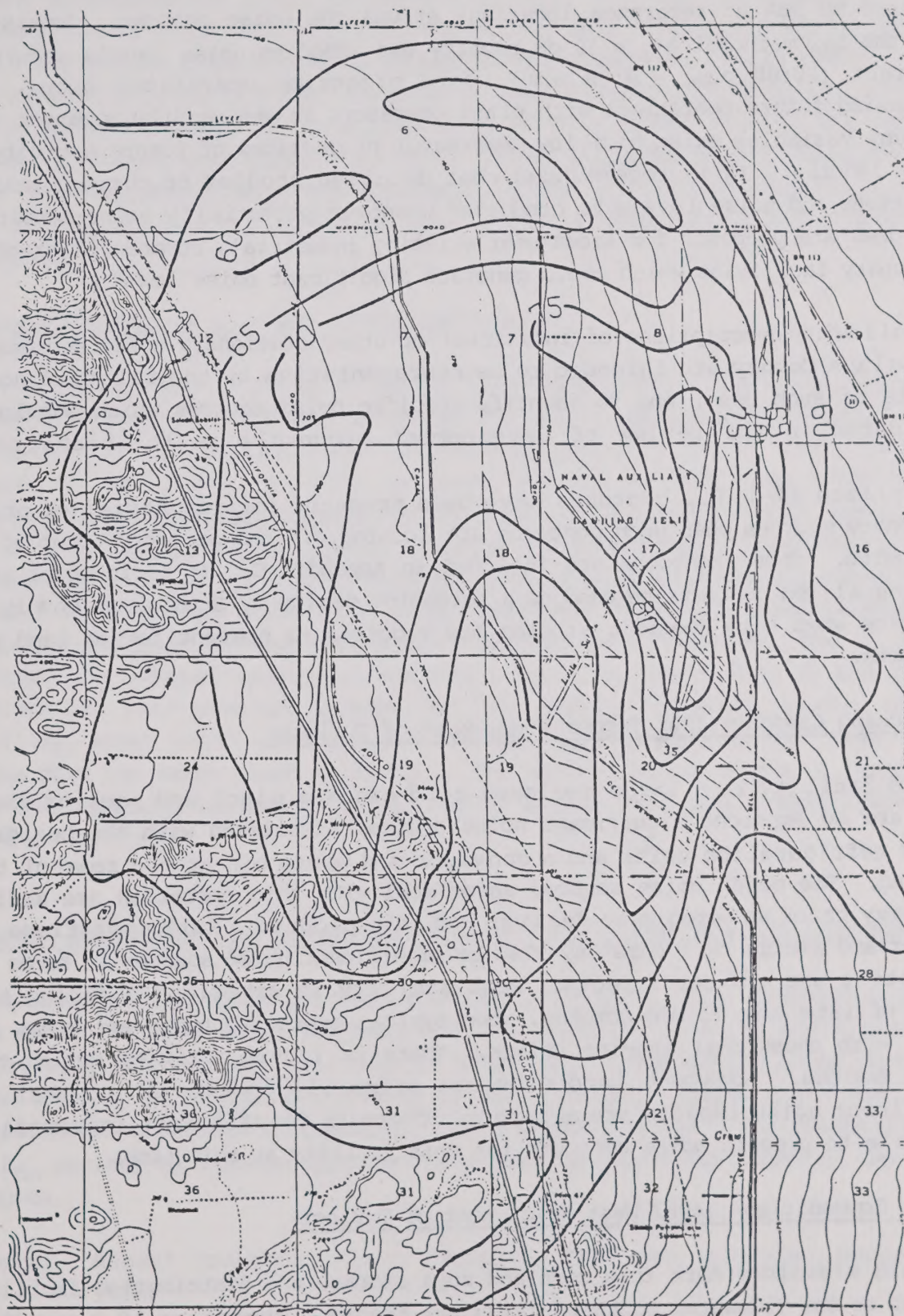
Master Plan for Naval Auxiliary Landing Field, Crows Landing, California, Western Division, Naval Facilities Engineering Command, San Bruno, California, October, 1981.

3.6 Industrial and Other Stationary Noise Sources

The production of noise is an inherent part of many industrial processes, even when the best available noise control technology is applied. Noise production within an industrial facility is controlled indirectly by Federal and State employee health and safety regulations (OSHA and Cal-OSHA), but exterior noise emissions from industrial operations have the potential to exceed locally acceptable standards at noise sensitive land uses.

Industrial noise control issues focus upon two objectives: to prevent the introduction of new noise-producing uses in a noise sensitive area, and to prevent encroachment of noise sensitive land uses upon existing industrial facilities or other stationary noise sources. The first objective can be achieved by applying performance standards to proposed new industrial uses or other stationary noise sources. The second objective can be met by requiring that new noise sensitive uses in proximity to existing noise sources include receiver-based mitigation measures to ensure compliance with the same performance standards.

Figure 3-4: CNEL Contours For Crows Landing NALF



Noise exposure information for industries and other stationary noise sources in the unincorporated areas of Stanislaus County was developed from operational data obtained from plant operators, and from noise level data obtained by BBA at reference locations around the noise sources. Consistent with the L_{dn} methodology, a 10 dB penalty was added to noise levels occurring at night (10:00 p.m. - 7:00 a.m.) where nighttime operations occur. In discussing future operations with plant operators it was readily apparent that too many variables exist to allow meaningful projections of future activity or noise levels. It is recommended that detailed studies of current source operations and noise levels be conducted whenever potentially noise sensitive land uses are proposed for areas near existing industrial, commercial or other stationary facilities which could generate significant noise levels.

The following descriptions of industrial or other stationary noise sources in Stanislaus County are intended to be representative of the relative noise impacts of such uses, and to identify specific noise sources which should be considered in the review of development proposals in their environs.

Generalized 60 dB L_{dn} contours have been prepared for industrial or other stationary sources when such contours are located off the property occupied by the source. These contours are included in Appendix C. It is intended that the generalized contours be used as a screening device by Stanislaus County to determine when site specific studies are required to prevent future land use conflicts.

ATB Packing Company: (501 Tegner Road, West of Turlock)

The ATB facility is a large enclosed cold storage plant and packing shed. There are no apparent significant noise sources associated with the building except refrigeration units and a conveyor and waste bin at the rear of the building. The major noise sources associated with this operation are medium and heavy truck movements to deliver and ship produce. Rail operations to deliver and pickup rail cars may also be significant noise sources in terms of locomotive use and car impacts. Peak activity is experienced during the months of late June to mid-October, when typical operating hours are 8 a.m. to 5 p.m., with occasional evening shifts. There is little activity during the winter months. Adjacent land uses are primarily industrial so that no significant noise impacts are apparent. There is insufficient information available to prepare noise contours for this facility at this time.

Foster Commodities: (4002 West Main, west of Turlock)

Six grain elevators mark this corn and soya storage and distribution facility adjacent to the Tidewater Southern railroad tracks. Operating 18 hours/day

(10 p.m. to 4 p.m.), the storage operation includes a number of fans for material handling and dust control. Other major noise sources include heavy truck movements as grain is picked up for delivery, and the use of a locomotive to move rail cars for unloading. The locomotive may be used 18 hours/day during 3 days/week to unload up to 75 cars delivered twice a week. Another noise source is the "air wrench" used to open rail cars for dumping. There are no noise-sensitive land uses in the immediate vicinity of this facility. Based upon noise level measurements conducted during December, 1986 and the above-described hours of operation, the generalized 60 dB L_{dn} contour for this operation is located at approximately 1600 feet from the center of the plant.

Casey Concrete, Inc.: (4200 Lester Road, Denair)

This concrete batch plant provides up to 40 mixing truck loads per day while receiving up to 20 materials loads per day during peak Summer periods. Hours of operation during those periods are typically 5 a.m. to 5 p.m. A front loader is used along the AT&SF railroad frontage to distribute materials to the storage bins and the concrete batch plant. A vibrator is also used at the batch plant to ensure complete transfer of materials. The primary noise sources for a concrete batch plant are mixing truck engines and heavy truck movements to deliver materials. Based upon noise level measurements conducted in December, 1986 and the above-described hours of operation, the 60 dB L_{dn} contour is located approximately 600 feet from the center of the plant. Residential land uses are proposed for the property immediately west of this facility, which could result in the creation of incompatible land uses due to noise from the batch plant operation. The noise contours shown in Appendix C for the community of Denair include noise levels from peak season operations by this facility.

Proctor and Gamble: (NE corner Whitmore and Crow's Landing Roads near Modesto)

This manufacturing plant produces disposable diapers on a continuous basis. The major noise sources are fans used for dust collectors, which generate relatively constant noise levels 24 hours/day. There are no noise-sensitive land uses in the immediate vicinity of this facility. Based upon noise level measurements conducted in December, 1986 and January, 1987, the generalized 60 dB L_{dn} contour is located approximately 2200 feet from the center of the plant complex.

Source: Robert Crowther, Plant Engineer, Telephone Interview, December 5, 1986.

Bronco Winery: (6342 Bystrum Road)

The major noise source at this winery is the operation of cooling towers which may be in operation 24 hours/day. Truck movements also occur to deliver grapes and ship wine. The peak activity period occurs in August and September during the hours of 8 a.m. to 4:30 p.m., with occasional shifts to 6 p.m. During this time of the year there are a significant number of heavy trucks bringing grapes to the winery and additional equipment may be used during crushing operations. Based upon measurements conducted in December, 1986, which are representative of year-round operations and do not reflect peak-season activities, the generalized 60 dB L_{dn} contour is located at approximately 1600 feet from the center of the plant.

Source: Ron Foster, Manager, Personal interview, December 5, 1986.

Bonzi Landfill: (2650 W. Hatch Road)

This landfill has been closed to the public since January 1985, and is currently used for storage, recycling and disposal of industrial wastes. Heavy trucks used for waste handling are presently stored and maintained onsite, and may be moved at any time during the 24-hour day. The majority of the trucking activity will be moved to the Beard industrial tract in February 1987. Berms and a block wall provide some shielding of onsite activities from nearby residences so that the major noise concerns are the result of heavy truck movements on Hatch Road. It is not known at this time whether the landfill will be re-opened to the public under the existing Solid Waste Facilities Permit. The noise impacts of this facility are represented by the traffic noise contours for West Hatch Road.

Source: Roger Ford, Manager, Personal interview, December 10, 1986.

Modesto Disposal Company: (2769 W. Hatch Road)

This enclosed refuse transfer station is open to the public and the disposal company's refuse and industrial waste hauling trucks. The major noise sources associated with this operation are heavy truck movements on West Hatch Road. It is anticipated that the use of this facility by the public and other haulers will increase significantly upon the closure of the Geer Road Landfill, with an attendant increase in traffic noise levels in the residential areas along West Hatch Road. The noise impacts of this facility are represented by the traffic noise contours for West Hatch Road.

Berry Feed & Seed Company: (Jessup and Faith Home Roads, Keyes)

This facility receives grain products by truck and rail for processing as seed and animal feeds. Major noise sources include material and air handling fans, hammermills and heavy truck movements. Operations are conducted year-round on a 24-hour/day basis. There is a cluster of residential land uses immediately south of the facility, although 5 of the residences are owned by the Berry company. The surrounding land is subject to a P-D zone classification so that the introduction of potential incompatible land uses into the plant's noise impact area can be controlled. Based upon noise level measurements conducted during December, 1986, the 60 dB L_{dn} contour for year-round mill operations is located at approximately 1550 feet from the center of the plant. This contour is included in the noise contours shown in Appendix C for the community of Keyes.

Source: Edwin Gallagher, Manager, Personal interview, December 10, 1986.

Grisez Warehouse: Crow's Landing

The Grisez warehouse complex includes three (3) mills enclosed in separate buildings. Lima, baby lima, and baby green beans, as well as black-eyed peas, are stored, cleaned and treated at this facility. Major noise sources include the three mills and associated ventilation fans, heavy truck deliveries and product or container handling by forklifts. During the peak harvest season, the hours of operation may range from 9 or 10 hours/day to 24 hours/day. The off season work day is 8 a.m. to 5 p.m. Residential land uses are located east of one mill building, but are partially shielded (and affected) by the Dompe Co. warehouse. The generalized 60 dB L_{dn} contour for peak season mill operations is located at approximately 830 feet from the center of the milling equipment as shown in Appendix C for the community of Crow's Landing.

Dompe Co. Warehouse: Crow's Landing

There were no discernable noise sources in operation at this facility during the survey period. It is reported that bean cleaning, storage and treatment is also performed at this facility during harvest season. Noise impacts are expected to be similar to those of other like facilities. Residential land uses are present immediately adjacent to this facility at the east property line, and may be noise-impacted. The noise contours shown in Appendix C for the community of Crow's Landing include a generalized 60 dB L_{dn} contour for peak season operations based upon measurements from similar facilities.

California Bean Growers Association: Westley Warehouse

Located along Highway 33 in Westley, this warehouse complex provides storage, cleaning and treating of dry baby green beans, lima beans and black-eyed peas. Noise-significant operations include the mills contained within metal buildings, outdoor product and container handling using propane-fueled forklifts, and heavy truck deliveries. Peak activities occur during the harvest season, from September through October, when operating hours may extend from 6 a.m. to midnite. From October to mid-February, the mills are active from about 7 a.m. to midnite; operating hours during the remainder of the year are usually 7 a.m. to 4 p.m. There are no adjacent noise-sensitive receivers, though outdoor activities are probably audible at residences along Kern Street. The 60 dB L_{dn} contour for the facility shown in Appendix C for the Community of Westley is representative of peak season mill noise levels.

Source: Miles Ghisletta, Manager, Personal interview, December 2, 1986.

Gallo Winery

The Gallo Winery and Gallo Glass Company are a large industrial complex located east of Dry Creek, between Yosemite Boulevard and the Tuolumne River. Operations occur on a 24 hour per day basis, 365 days per year. Major noise sources associated with both facilities include cooling towers, refrigeration equipment and various types of large and small fans. Bottling operations are enclosed within the buildings. Noise from heavy truck movements is significant in some areas around the plants. Noise level measurements were conducted during the afternoon and late evening hours of January 13, 1987 at 9 locations around the plant facilities to document noise levels from typical operations. According to plant management, all facilities were in normal operation during the measurement period with the exception of some refrigeration equipment which operates during the warmer months of the year. Noise levels at or near the plant boundaries ranged from approximately 55 to 70 dBA. Based upon the assumption that measured noise levels are representative of typical operations and that the plants operate on a continuous basis, the generalized location of the 60 dB L_{dn} contour was calculated as shown in Appendix C. It should be noted that the generalized 60 dB L_{dn} contour shown in Appendix C is based upon noise levels at or near the plant boundaries, and that actual noise exposure may be somewhat less than indicated east and north of the glass plant due to shielding provided by existing residential structures in the area. New construction of noise-sensitive land uses should not be allowed in the areas potentially exposed to

noise levels exceeding the standards of the Noise Element without site specific studies of noise exposure and receiver-based mitigation measures.

Source: Mr. Jean Fones, Safety Manager, Gallo Winery, Modesto, California.

Beard Industrial Tract

The Beard Industrial Tract is generally bounded by the Modesto City-County Airport on the west, Yosemite Boulevard on the north, the Atchison, Topeka and Santa Fe Railroad on the east, and Finch Road on the south. There are a variety of heavy industrial uses within the tract, many of which contain significant stationary noise sources. Significant mobile sources of noise within the tract include automobile and truck traffic and railroad switching operations. Many of the major industrial uses within the tract operate 24 hours per day, 5-7 days per week. Some of the food processing plants have seasonal peaks in operations depending upon the growing season of the food source being processed. In order to prepare a generalized 60 dB L_{dn} contour for use in the project review and long range planning processes, only the major noise sources along the boundaries of the tract were evaluated. This was accomplished by conducting noise level measurements and field observations of apparent plant activities along all sides of the tract several times during the period of January 13-14, 1987. Such evaluations indicated that cumulative noise exposure, as defined by L_{dn} , along the north side of the tract are determined by traffic on Yosemite Boulevard and operations on the Modesto-Empire Traction Company railroad. Similarly, cumulative noise exposure on the east and west sides of the tract are determined by operations on the Atchison, Topeka and Santa Fe Railroad and aircraft operations at the Modesto City-County Airport, respectively. Along the south side of the tract, noise exposure varied depending upon proximity to individual major noise sources. Measurements of noise levels conducted along the south side of Finch Road indicated that noise levels in this area range from 50-62 dBA during the winter months of the year. It is likely that noise levels are somewhat, and perhaps significantly, higher in the vicinity of food processing plants during other times of the year. Based upon measurements obtained in January, 1987 and the assumption that facilities operate 24 hours per day, the 60 dB L_{dn} contour would be expected to fall within the industrial tract boundaries south of Finch Road. Due to possible significant fluctuations in noise levels due to seasonal variations in activity, it is recommended that site-specific studies be conducted whenever a noise sensitive land use is proposed for the area between the Tuolumne River and Finch Road to more fully define noise

exposure and address possible receiver-based mitigation measures.

Source: Various plant managers and personnel for facilities located within the Beard Industrial Tract.

North Modesto Industrial Park

The North Modesto Industrial Park is situated south of State Route 219 (Kiernan Avenue) and west of McHenry Avenue along the Tidewater Southern Railroad tracks. Most of the industrial complex is devoted to warehousing, equipment storage, equipment maintenance and light manufacturing activities. An exception to this is the Pacific Aluminum Corporation Extruded Products Division operation which was the only operation observed to generate significant noise levels during field studies and noise level measurements conducted on January 13, 1987. The Pacific Aluminum Corporation plant operates 24 hours per day 6-7 days per week. Products are extruded aluminum channels and surface treating of aluminum components. Major sources of noise from this plant are "log" tables and refrigeration and air pollution control equipment. Most noise sources are located on the western side of the facility, facing the railroad tracks. Noise level measurements conducted on January 13, 1987 indicated that average noise levels at the center of the railroad tracks west of the plant range from 73 to 74 dBA. Noise levels near the closest residence west of the plant were approximately 58 dBA. Based upon the above-described hours of operation and noise levels, the generalized 60 dB L_{dn} contour is located approximately 1000 feet from the western edge of the buildings in a westerly direction. Noise levels to the north, south and east of the facility are confined to an area within a few hundred feet of the building due to shielding provided by the building. Present uses in the area surrounding the North Modesto Industrial Park generally consist of agricultural uses with scattered residences and a busy roadway (SR 219). Future land use conflicts in this area may be avoided by implementation of the policies contained within the Noise Element.

Source: Mr. Ken Brinkley, Personnel Manager, Pacific Aluminum Corporation, Modesto, California.

California Almond Growers Exchange: (4800 Sisk Road, East of Salida)

This is an almond receiving, processing and storage facility. The plant operates 5-6 days per week between the hours of 6:00 a.m. and midnight. The peak season is September through November during the almond harvesting season.

Noise sources associated with the operation of the plant include heavy truck movements, elevators, dust collectors and conveyors. There is an almond hulling operation not owned by California Almond Growers Exchange located immediately east of the facility. Noise level measurements were conducted along the western frontage of the plant (along Sisk Rd.) on December 3, 1986. At approximately 900 feet from an elevator located in the almond storage area at the south end of the facility, the noise level was 65-66 dBA. At approximately 200 feet from processing equipment located in the receiving area of the plant the noise level was 66 dBA. According to plant management, such levels are probably not representative of peak season activities when there are a large number of heavy trucks arriving and departing from the facility and all stationary equipment is in full operation. The plant is presently surrounded by agricultural or industrial/commercial uses with State Route 99 located immediately to the west. There is apparently some development pressure in the form of a proposed subdivision to be located to the northwest of the plant. It is recommended that a site-specific study of potential noise impacts affecting noise sensitive land uses be prepared prior to the approval of any such uses, and that mitigation at the receiving land use be required. Noise contours were not prepared for this facility since it was not possible to obtain noise level data representative of peak season operations. Noise contours based upon noise level data obtained on December 3, 1986 might understate the potential noise impacts of this facility on surrounding areas.

Source: Mr. Lincoln Markwith, Operations Manager, California Almond Growers Exchange, Salida, California.

Flory Industries: (4737 Toomes Road, West of Salida)

This manufacturing and fabrication plant is located in an agricultural area which is subject to residential development pressures on the east side of Toomes Road. Products of this facility are walnut harvesters and sweepers, sprayers, blowers, agricultural implements and trailer hitches. Shop hours are typically 7:00 a.m. to 3:30 p.m., 5 or 6 days per week, with occasional overtime shifts. Most manufacturing operations are located within buildings, but steam cleaning and heavy-duty riveting are performed outdoors. Noise sources which were audible at the property line included forklifts, trucks, welding and grinding operations, steam cleaning and the operations of compressors and pumps.

The Florey Industries operation includes limited aircraft activity on an 1850' paved airstrip. Aircraft using the airstrip typically arrive over the developing residential areas east of Toomes Road and depart to the northwest.

Based aircraft include a Piper Turbo Aztec (twin) and one or two single-engine Cessnas. A typical busy summer day may consist of 3 or 4 flights by company aircraft and visiting clients. Some night landings and takeoffs occur, but the minimal lighting facilities preclude intensive nighttime use of the airstrip.

Noise contours were not prepared for the airstrip or the manufacturing plant since it is expected that the 60 dB L_{dn} (or CNEL) contours are located entirely within the property boundaries. Consideration of noise-sensitive development proposals in the vicinity of this facility should include review of single event aircraft noise levels and potential annoyance due to occasional aircraft overflights, outdoor manufacturing operations and heavy truck movements.

Source: Mr. Howard Florey, President, telephone interview, January 15, 1987.

M.F. Ruddy & Son (Santa Fe Rock and Sand)

This is a sand and gravel extraction and processing operation located east of Waterford between the Tuolumne River and State Route 132. Asphalt and concrete batch plants are located within the material processing area along with the crushing and screening equipment. Extraction, crushing and screening operations occur 5 days per week between the hours of 6:00 a.m. and 11:00 p.m. during the peak season (June through October) and 7:00 a.m. and 5:00 p.m. during the balance of the year. The asphalt plant operates approximately 4 days per week during the summer months and 2 days per week during the rest of the year. Start-up time for the asphalt plant is approximately 6:00 a.m. during the summer and 7-8:00 a.m. during the rest of the year. The concrete batch plant is only used occasionally (10 days during the past 6 months). Extraction operations utilize a backhoe and bottom-dump diesel trucks and trailers. The crushing operation utilizes one jaw crusher, 2 cone crushers and a Barmac vertical impact crusher with a diesel generator. Noise measurements were conducted on December 3, 1986 while all extraction and processing equipment, with the exception of the asphalt plant, were in simultaneous operation. The measurement location was the turnout for the plant access road along State Route 132. Measured noise levels were approximately 60 dBA. On December 4, 1986, measured noise levels at the same location were approximately 60-62 dBA with the asphalt plant in operation. Maximum noise levels of approximately 63 dBA at the monitoring site were caused by haul trucks climbing the ramp to dump their loads. Based upon a worst-case scenario of a peak season day (6:00 a.m. - 11:00 p.m.) with the asphalt plant in operation, the calculated location of the 60 dB L_{dn} contour

was determined to be approximately 4500 feet from the center of the processing plant area, although shielding from the bluff along the river would be expected to reduce noise levels significantly in areas north of State Route 132. The 60 dB L_{dn} contour for excavation and hauling activities would be located at approximately 600 feet from the area being excavated. As a worst-case assessment of excavation noise levels, the generalized 60 dB L_{dn} contour should include areas which are within approximately 600 feet of areas which could potentially be excavated.

Source: Mr. Cam Adams, Plant Manager, M.J. Ruddy and Son (Santa Fe Rock and Sand), Modesto, California.

4.0 COMMUNITY NOISE SURVEY

As required by the Government Code and ONC Guidelines, a community noise survey was conducted to document noise exposure in areas of the County containing noise sensitive land uses. The following noise sensitive land uses have been identified within Stanislaus County.

1. All residential uses
2. Schools
3. Long-term care medical facilities, such as hospitals, nursing homes, etc.

Noise monitoring sites were selected to be representative of typical conditions in the unincorporated areas of the County where such uses are located. A total of 24 monitoring sites were selected as shown in Figure 4-1. A combination of short-term and continuous noise monitoring was used to document existing noise levels at these locations. Noise monitoring equipment used for short-term monitoring consisted of Bruel & Kjaer (B&K) Type 2218 and 2230 precision sound level meters equipped with Type 4165 and 4155 1/2" microphones, respectively. Equipment used for continuous monitoring consisted of Metrosonics dB604 Environmental Noise Analyzers equipped with B&K Type 4176 1/2" microphones. All measurement equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I sound level meters.

During the short-term monitoring programs, noise levels were sampled for approximately 15 minutes during each of the three periods of the day and night so that reasonable estimates of L_{dn} at the monitoring sites could be prepared.

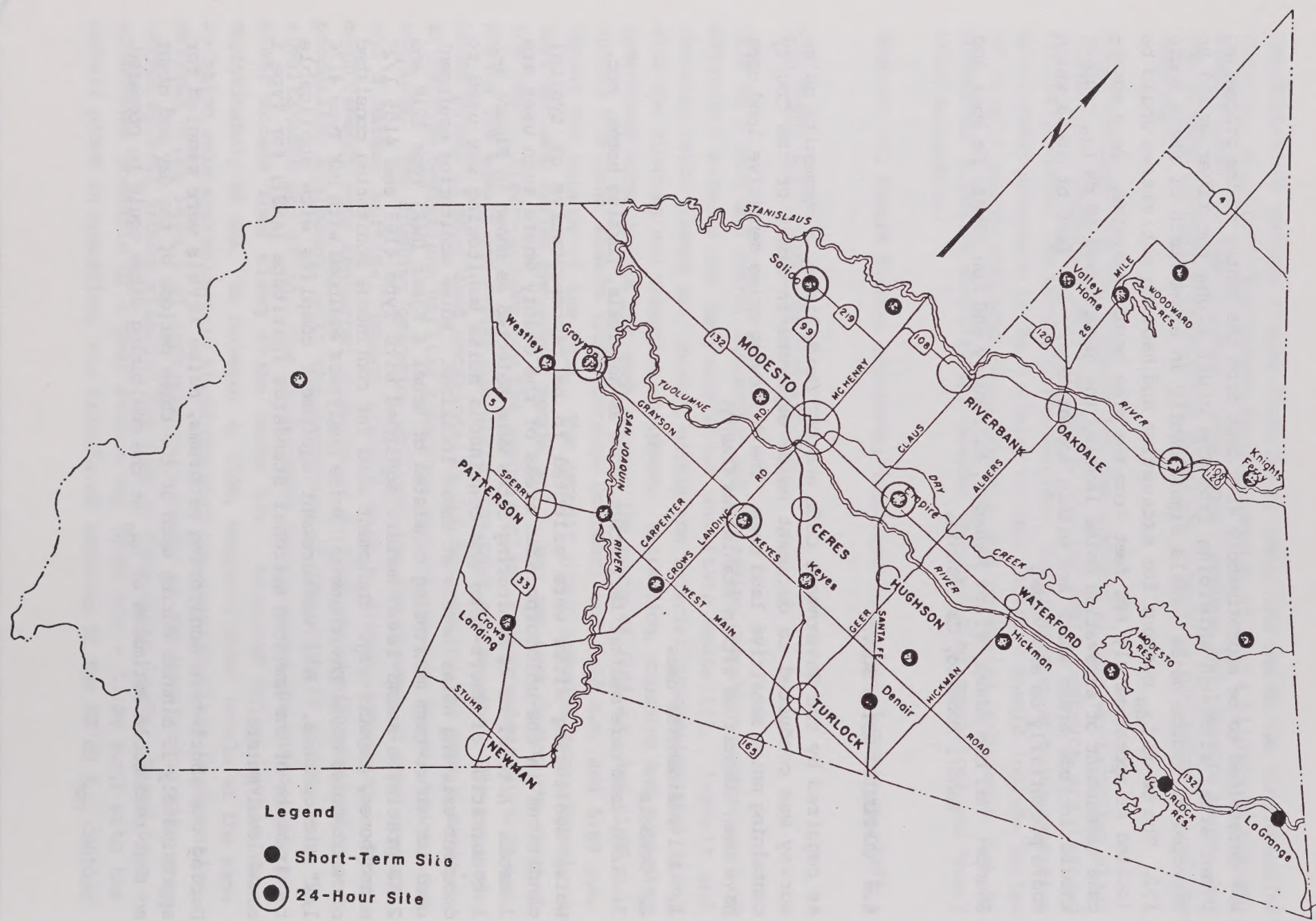


FIGURE 4-1 COMMUNITY NOISE SURVEY MONITORING SITES

The data collected during the short-term sampling program included the L_{eq} , maximum noise level and minimum noise level and a description of major sources of noise which were audible at the monitoring sites. Continuous noise monitoring was conducted at 5 out of the 24 community noise survey sites to document fluctuations in noise levels over a typical 24-hour period. Noise level data collected during continuous monitoring included the hourly L_{eq} and maximum noise level, and the statistical distribution of noise levels over each hourly sample period. Twenty-four (24) hour noise levels at the sites where continuous noise monitoring was conducted are shown in graphic form in Figures 4-2 through 4-6. Short-term and continuous noise monitoring for the community noise survey were conducted during the week of December 1, 1986. Survey results are summarized in Table 4-1.

The community noise survey results indicate that typical noise levels in noise sensitive areas of the unincorporated areas of Stanislaus County are in the range of 37-60 dB L_{dn} . As would be expected, the quietest areas are those which are removed from major transportation-related noise sources and local industrial or other stationary noise sources. Good examples of these quiet areas are rural residential areas such as Eugene, Warnerville and La Grange and recreational areas such as Woodward Reservoir Regional Park, Modesto Reservoir County Park and the Turlock Lake State Recreation Area. It is anticipated that noise levels in these otherwise quiet recreational areas would be somewhat higher during the summer season when such areas receive greater use. The noisier areas surveyed included residential or other noise sensitive land uses located near state highways (Salida), major county roadways (Westport) or railroads (Empire). Noise levels in some areas were higher than would normally be expected such as in Knights Ferry where bridge construction was in progress 24 hours per day. It should also be noted that rain on the evening of December 4, 1986 caused background noise levels at Site #8 (Salida) and Site #15 (Grayson) to be somewhat higher than usual due to increased tire noise on nearby roadways. Maximum noise levels observed during the survey were generally caused by local traffic or heavy trucks on state highways or major County roadways. Other sources of maximum noise levels included occasional aircraft overflights and, in some areas, railroad operations (especially horns). Background noise levels in the absence of the above-described sources included distant traffic, wind in the trees, running water, birds and distant industrial or other stationary noise sources.

24-HOUR NOISE LEVELS

East of Oakdale, 12/4/86

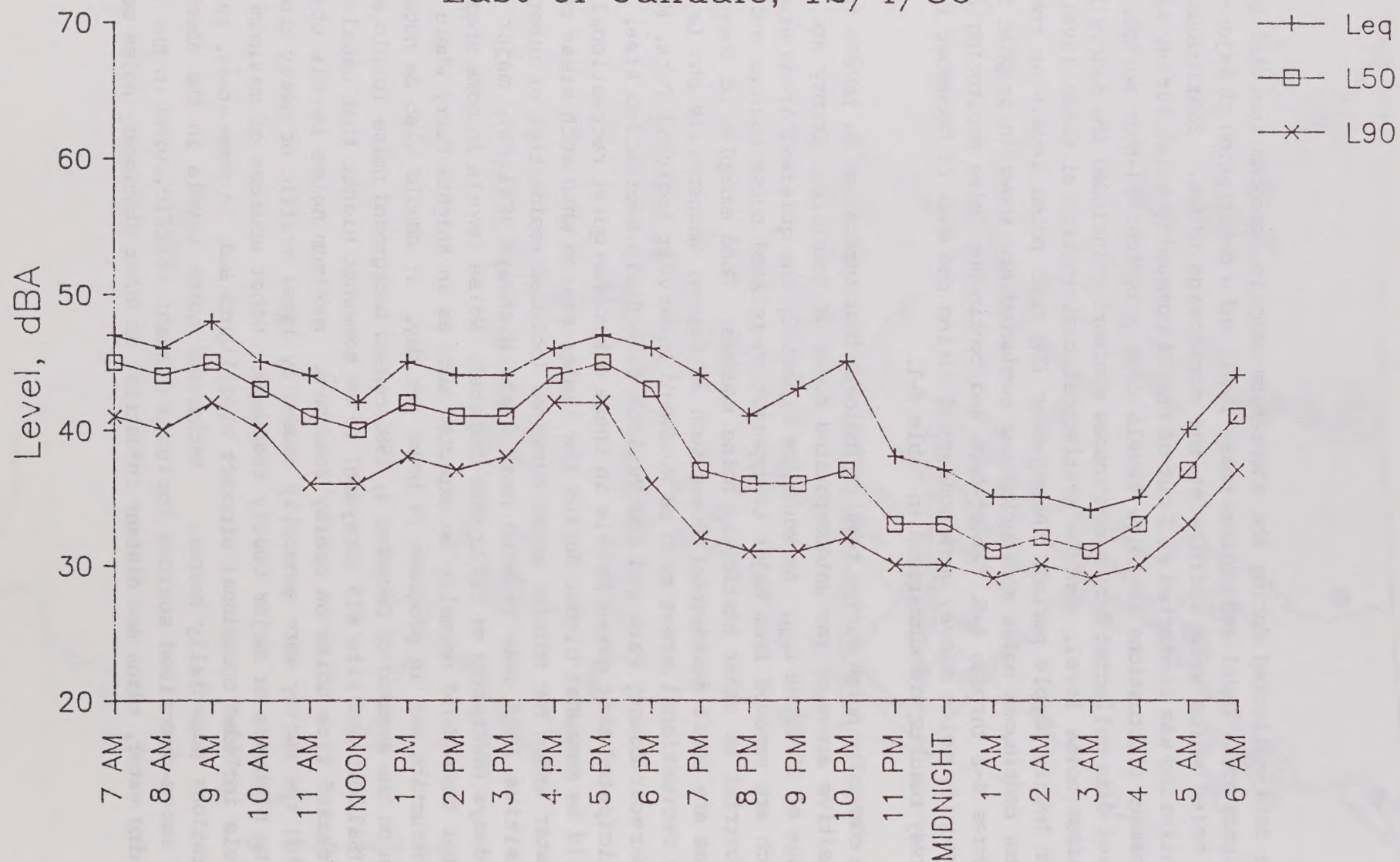


Figure 4-2

24-HOUR NOISE LEVELS

Salida, 12/6/86

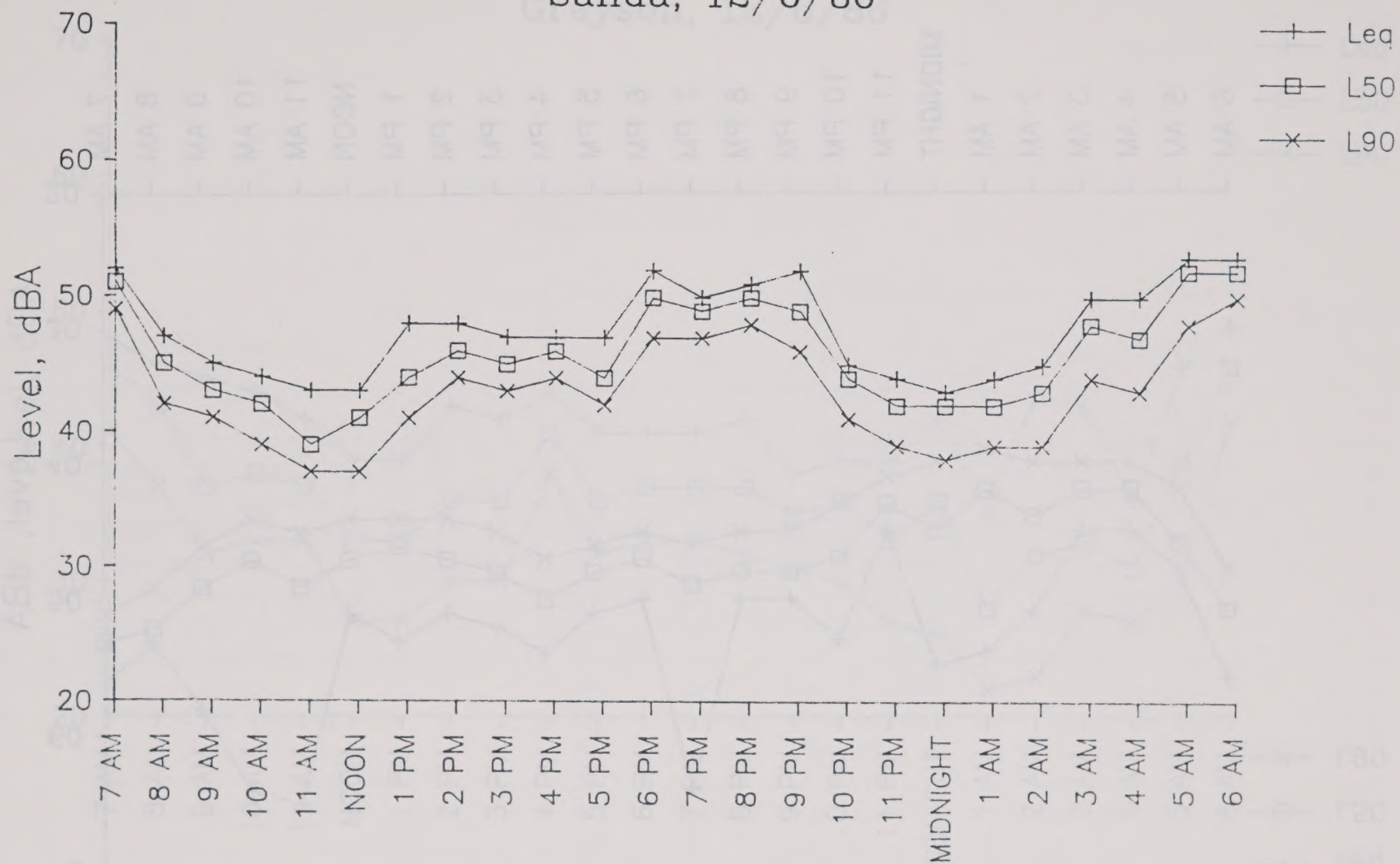


Figure 4-3

24-HOUR NOISE LEVELS

Empire, 12/3/86

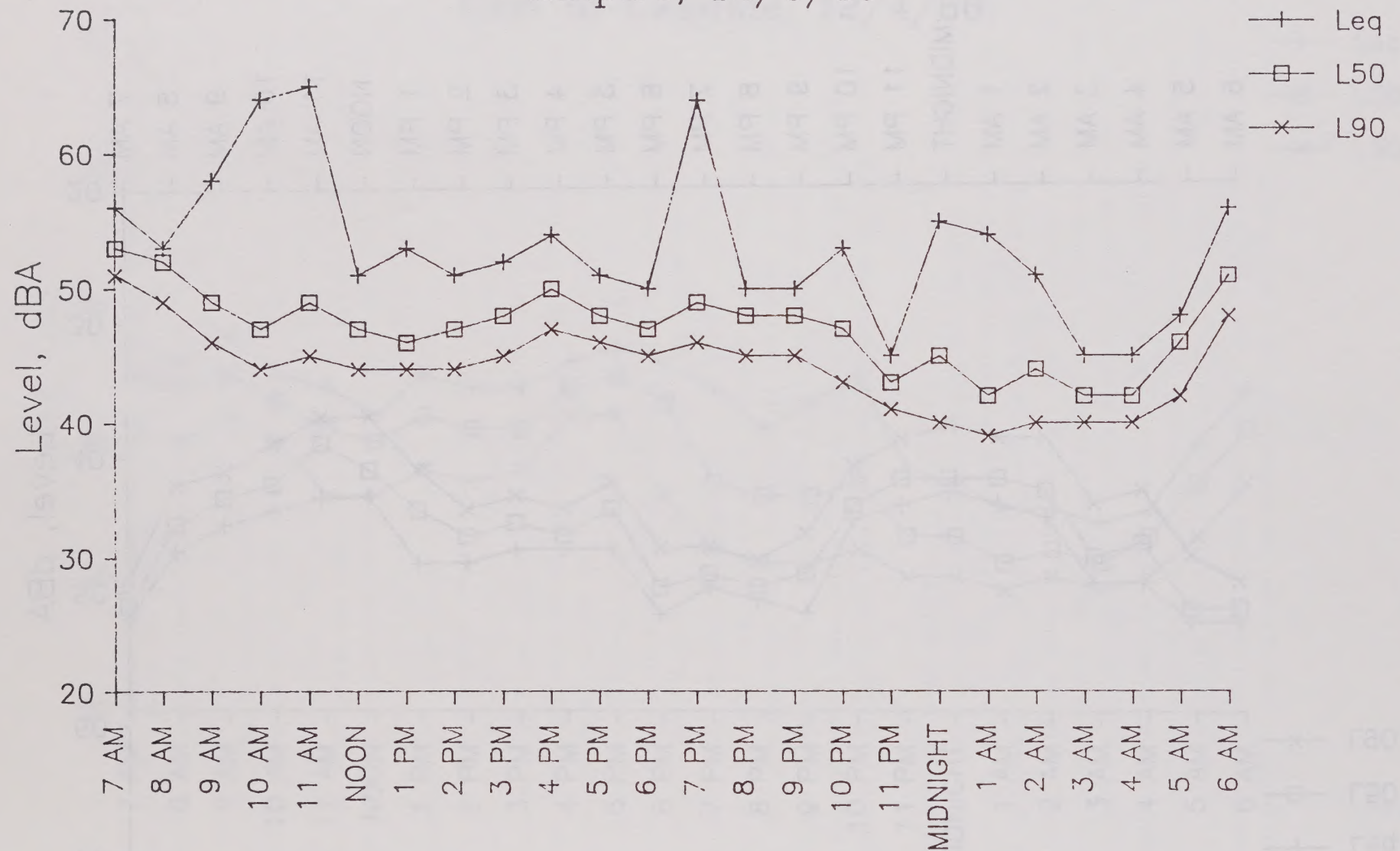


Figure 4-4

24-HOUR NOISE LEVELS

Grayson, 12/6/86

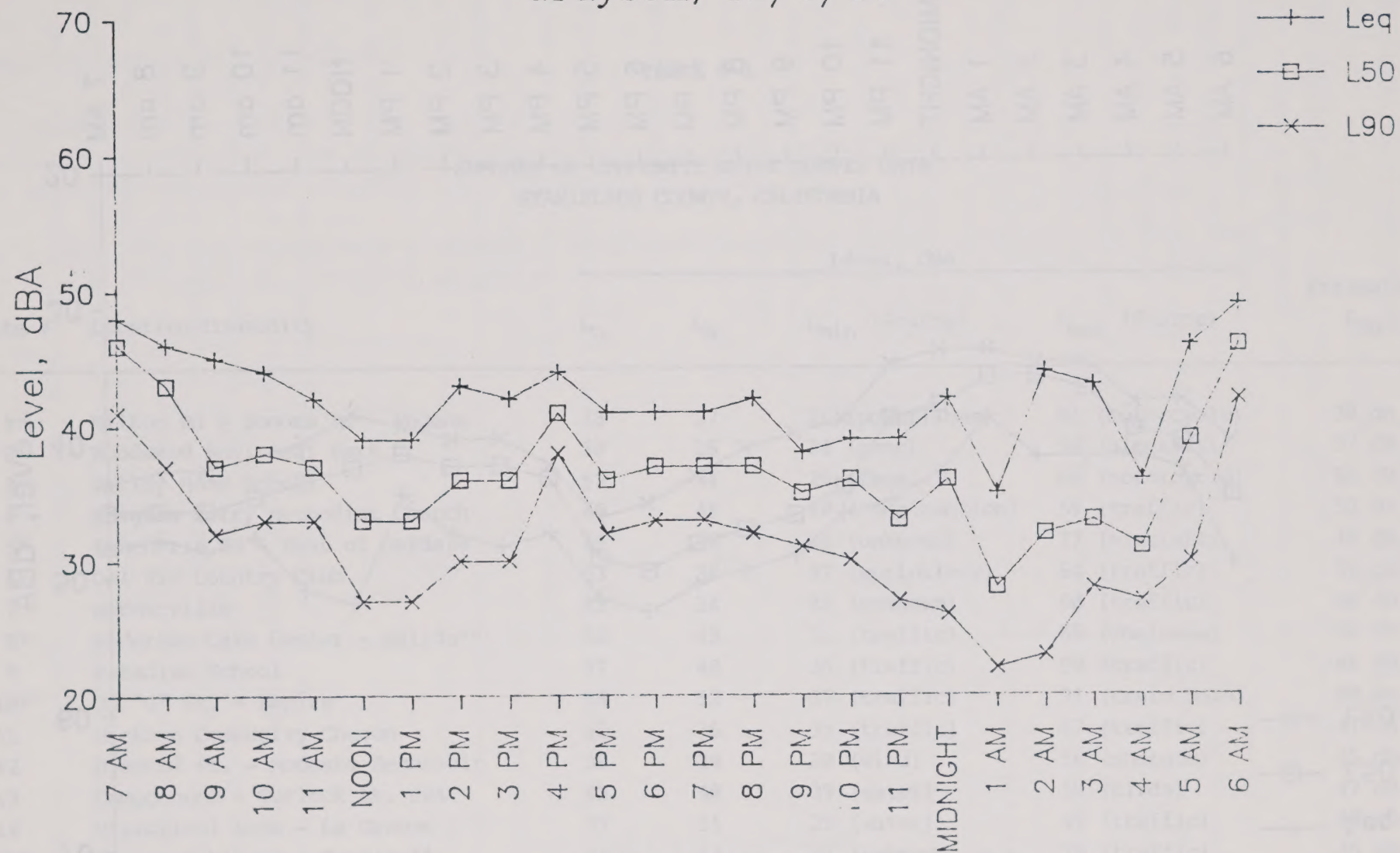


Figure 4-5

24-HOUR NOISE LEVELS

Rural Westport Area, 12/4/86

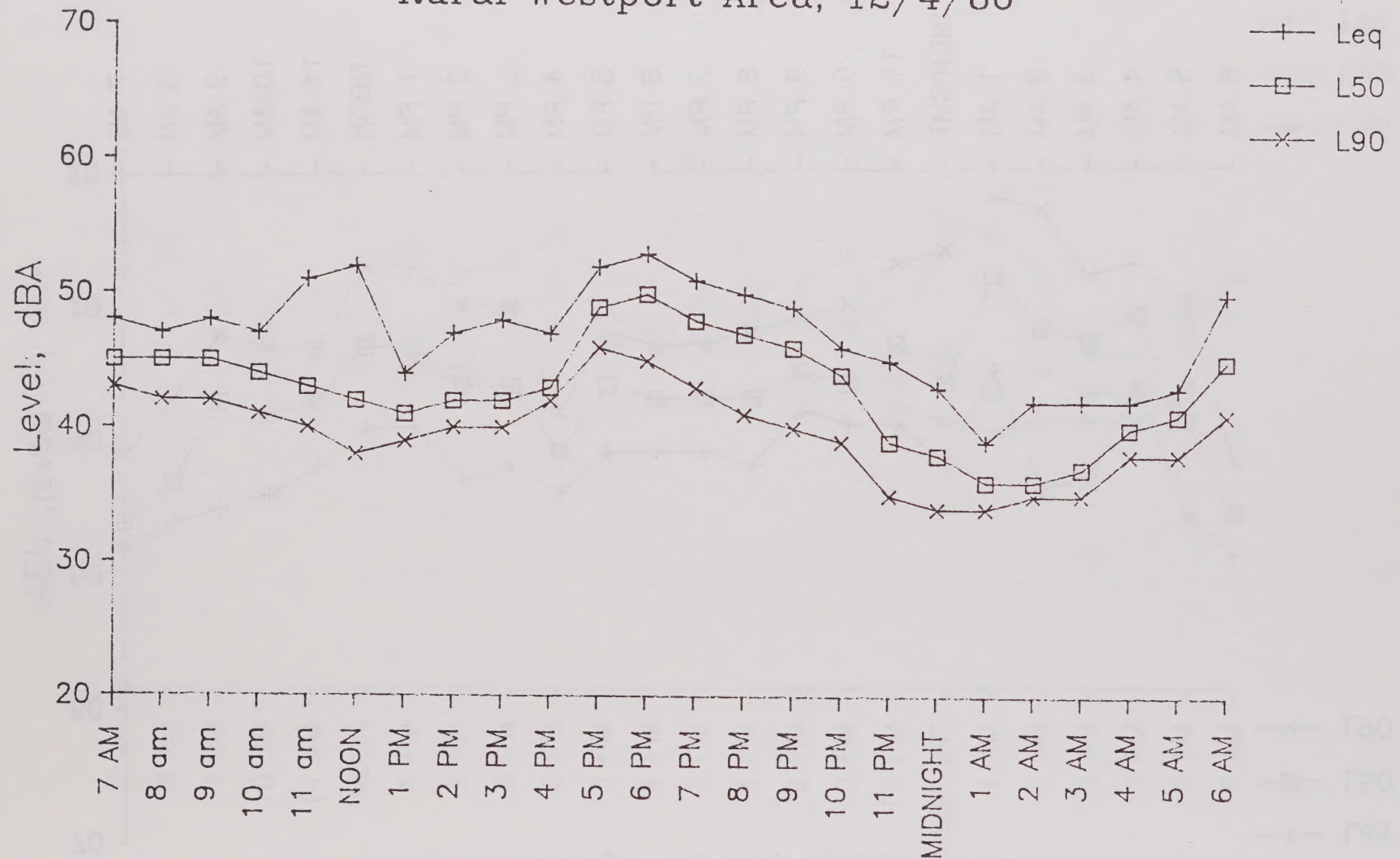


Figure 4-6

TABLE 4-1

SUMMARY OF COMMUNITY NOISE SURVEY DATA
STANISLAUS COUNTY, CALIFORNIA

Site #	Location/Community	Level, dBA				Estimated L _{dn}
		L _D	L _N	L _{min} (Source)	L _{max} (Source)	
1	Milton Rd @ Sonora Rd - Eugene	38	27	21 (powerlines)	81 (motorcycle)	38 dB
2	Woodward Res. Reg. Park	38	26	24 (pump)	50 (aircraft)	37 dB
3	Valley Home School	52	34	29 (fans)	66 (motorcycle)	50 dB
4	Knights Ferry Methodist Church	46	45	40 (construction)	59 (traffic)	52 dB
5*	Rancheria Rd - East of Oakdale	45	40	28 (unknown)	77 (aircraft)	48 dB
6	Del Rio Country Club	53	38	37 (sprinklers)	64 (traffic)	52 dB
7	Warnerville	42	24	22 (unknown)	60 (traffic)	40 dB
8*	Anderson Care Center - Salida**	50	49	35 (traffic)	69 (chainsaw)	52 dB
9	Paradise School	47	40	38 (traffic)	59 (traffic)	48 dB
10*	23 "G" St. - Empire	58	52	37 (traffic)	91 (train horn)	60 dB
11	Hickman Community Church	48	36	35 (traffic)	67 (traffic)	47 dB
12	Diamond Pt. - Modesto Reservoir	38	39	30 (wind)	56 (shotgun)	45 dB
13	Campground - Turlock Lk. SRA	42	40	39 (water)	50 (birds)	47 dB
14	Historical Area - La Grange	39	31	28 (water)	49 (traffic)	40 dB
15*	Minnie @ Wilson - Grayson**	43	43	21 (unknown)	78 (traffic)	45 dB

TABLE 4-1 (Continued)

Site #	Location/Community	Level, dBA				Estimated L_{dn}
		L_D	L_N	L_{min} (Source)	L_{max} (Source)	
16	Kern @ "B" St. - Westley	49	37	32 (traffic)	69 (traffic)	48 dB
17*	Lathrop @ Ave "A" - Westport	50	45	33 (traffic)	76 (traffic)	53 dB
18	Hatch Park - Keyes	50	52	33 (traffic)	66 (traffic)	58 dB
19	Gratton School	55	31	30 (fans)	71 (aircraft)	53 dB
20	Elm @ Fresno - Denair	54	36	31 (traffic)	71 (aircraft)	52 dB
21	Frank Raines County Park	33	28	28 (wind)	41 (birds)	36 dB
22	Las Palmas Fishing Access	53	50	49 (water)	58 (aircraft)	57 dB
23	Mt. View School	62	41	38 (fans)	77 (traffic)	60 dB
24	Bonita Ave - Crows Landing	47	38	30 (traffic)	60 (traffic)	47 dB

L_D = Mean L_{eq} based upon 15-minute samples or continuous monitoring between 7:00 a.m. and 10:00 p.m.

L_N = Mean L_{eq} based upon 15-minute samples or continuous monitoring between 10:00 p.m. and 7:00 a.m.

* Continuous monitoring conducted for a minimum of 24 hours.

** Noise levels higher than normal at night due to rain (water on streets).

Estimated L_{dn} values have been adjusted accordingly.

Source: Brown-Buntin Associates, Inc.

5.0 TECHNIQUES FOR NOISE CONTROL

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. Local control of noise sources is practical only with respect to fixed sources (e.g., industrial facilities, outdoor activities, etc.), as control of vehicular sources is generally preempted by federal or state law. Control of fixed noise sources is usually best obtained by enforcement of a local noise control ordinance. The emphasis of noise control in land use planning is usually placed upon acoustical treatment of the transmission path and the receiving structures.

The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (e.g., L_{dn} , L_{eq} , L_{max}), the location of the sensitive receiver (inside or outside), and when the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Basic noise control techniques include the following:

5.1 USE OF SETBACKS

Noise exposure may be reduced by increasing the distance between the noise source and receiving use. Setback areas can take the form of open space, frontage roads, recreational areas, storage yards, etc. The available noise attenuation from this technique is limited by the characteristics of the noise source, but is generally 4 to 6 dBA per doubling of distance from the source.

5.2 USE OF BARRIERS

Shielding by barriers can be obtained by placing walls, berms or other structures, such as buildings, between the noise source and the receiver. The effectiveness of a barrier depends upon blocking line-of-sight between the source and receiver, and is improved with increases in distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "path length difference," and is the basis for calculating barrier effectiveness. Figure 5-1 illustrates

barrier will vary for each of these sources. Frequency analysis is necessary to properly calculate barrier attenuation of noise from sources other than highway traffic.

There are practical limits to the noise reduction provided by barriers. For highway traffic noise, a 5 to 10 dBA noise reduction may often be reasonably attained. A 15 dBA noise reduction is sometimes possible, but a 20 dBA noise reduction is extremely difficult to achieve. Barriers may be provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall will provide up to 3 dBA additional attenuation over that attained by a solid wall alone, due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons.

Another form of barrier is the use of a depressed noise source location, such as depressed roadways or depressed loading areas in shopping centers. The walls of the depression serve to break line-of-sight between the source and receiver, and will provide some absorption if left in earth or vegetative cover.

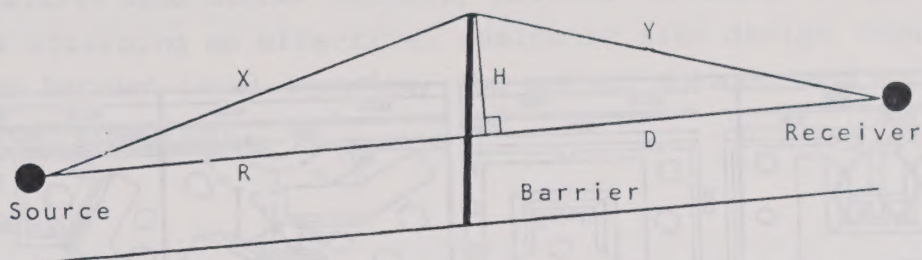
5.3 SITE DESIGN

Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce overall project noise control costs, particularly if the shielding structure is insensitive to noise. As an example, carports or garages can be used to form or complement a barrier shielding adjacent dwellings or an outdoor activity area. Similarly, one residential unit can be placed to shield another so that noise reduction measures are needed for only the building closest to the noise source. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method of providing a quiet retreat in an otherwise noisy environment. Patios or balconies should be placed on the side of a building opposite the noise source, and "wing walls" can be added to buildings or patios to help shield sensitive uses.

Where project design does not allow using buildings or other land uses to shield sensitive uses, noise control costs can be reduced by orienting

the principles of noise control by barriers. The path length difference is the difference between $(R + D)$ and $(X + Y)$.

FIGURE 5-1



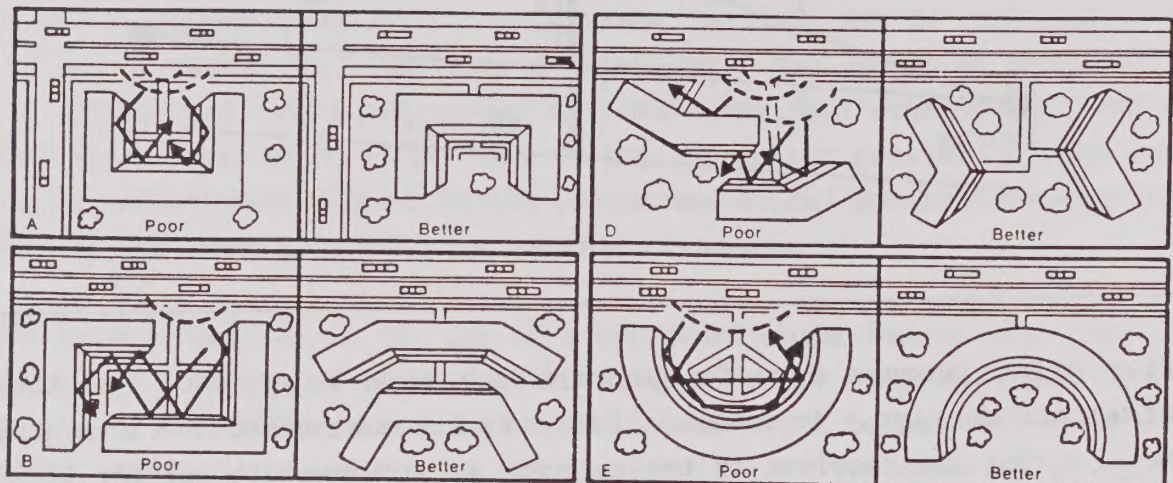
Barrier effectiveness depends upon the relative heights of the source, receiver and barrier. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller path length difference for a given increase in barrier height than does a location closer to either source or receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 lbs./square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss in the frequency range of concern. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line-of-sight to all significant noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

The attenuation provided by a barrier depends upon the frequency content of the source. Generally, higher frequencies are attenuated (reduced) more readily than lower frequencies. This results because a given barrier height is relatively large compared to the shorter wavelengths of high frequency sounds, while relatively small compared to the longer wavelengths of the frequency sounds. The effective center frequency for traffic noise is usually considered to be 550 Hz. Railroad operations, aircraft and industrial noise source emit noise with differing frequency content, so the effectiveness of a

buildings with the narrow end facing the noise source, reducing the total area of the building requiring acoustical treatment. Some examples of building orientation to reduce noise impacts are shown in Figure 5-2.

FIGURE 5-2



Another option in site design is the placement of relatively insensitive land uses, such as commercial or storage areas, between the noise source and a more sensitive portion of the project. Examples include development of a commercial strip along a busy arterial to block noise affecting a residential area, or providing recreational vehicle storage along the noise-impacted edge of a mobile home park. If existing topography or development adjacent to the project site provides some shielding, as in the case of an existing berm, knoll or building, sensitive structures or activity areas may be placed behind those features to reduce noise control costs (Figure 5-3).

FIGURE 5-3

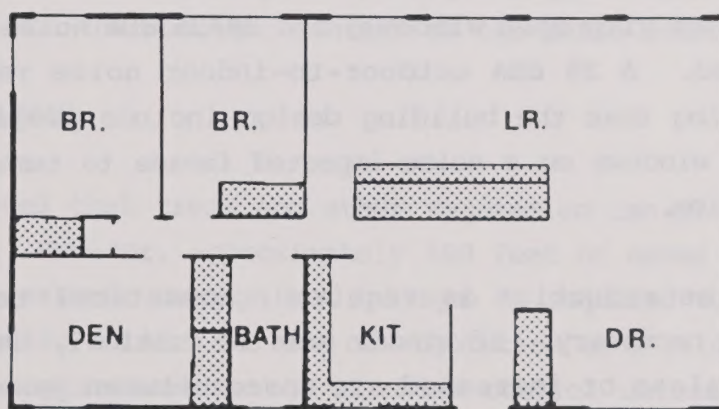


Site design should also guard against the creation of reflecting surfaces which may increase onsite noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dBA. The open end of a "U"-shaped building should point away from noise sources for the same reason. Landscaping walls or noise barriers located within a development may inadvertently reflect noise back to a noise-sensitive area unless carefully located. Avoidance of these problems, as well as attaining an effective, aesthetic site design requires close coordination between local agencies, the project engineer and architect, and the acoustical consultant.

5.4 UNIT DESIGN

When structures have been located to provide maximum noise reduction by barriers or site design, noise reduction measures may still be required to achieve an acceptable interior noise environment. The cost of such measures may be reduced by placement of interior dwelling unit features. For example, bedrooms, living rooms, family rooms and other noise-sensitive portions of a dwelling can be located on the side of the unit farthest from the noise source, as shown by Figure 5-4.

FIGURE 5-4



HIGHWAY

Bathrooms, closets, stairwells and food preparation areas are relatively insensitive to exterior noise sources, and can be placed on the noisy side of a unit. When such techniques are employed, noise reduction requirements for the building facade can be significantly reduced, although the architect must take care to isolate the noise impacted areas by the use of partitions or doors.

5.5 BUILDING DESIGN

In some cases, external building facades can influence reflected noise levels affecting adjacent buildings. This is primarily a problem where high-rise buildings are proposed, and the effect is most evident in urban areas, where an "urban canyon" may be created. Bell-shaped or irregular building facades, setbacks and attention to building orientation can reduce this effect.

5.6 NOISE REDUCTION BY BUILDING FACADES

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades. Standard residential construction practices provide 12-15 dBA noise reduction for building facades with open windows, and 20-25 dBA noise reduction when windows are closed. A 20 dBA outdoor-to-indoor noise reduction can be obtained by requiring that the building design include adequate ventilation systems, allowing windows on a noise-impacted facade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building facade is necessary. If window area is critical, use of acoustical glazing (thicker glass or increased air space between panes), fixed (non-movable) glazing and reduction of windows are effective noise control techniques. Standard energy-conservation double-pane glazing with an 1/8" or 1/4" air-space is not considered acoustical glazing, as its sound transmission loss may be less than single-pane 1/8" glazing. Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members by the use of double- or staggered- stud walls, or mounting interior walls on resilient channels.

Noise control measures for exterior doorways include reducing door area, using solid-core doors, and acoustically sealing door perimeters with suitable gaskets. Roof/ceiling treatments may include the use of plywood sheathing under roofing materials or resilient channels for ceiling panels. Vent ducts and openings for attic or subfloor ventilation may also require acoustical treatment. Tight-fitting fireplace dampers and glass doors may be needed in aircraft noise-impacted areas.

Whichever noise control techniques are employed, it is essential that attention be given to installation of weatherstripping and caulking of joints.

Acoustical design for building facades should be based upon analysis of the level and frequency content of the noise source. The transmission loss of each building component should be defined, and the composite noise reduction for the facade calculated, accounting for absorption in the receiving room. A one-third octave band analysis is a definitive method of calculating the A-weighted noise reduction of a facade. Requirements for transmission loss analyses are outlined by Section 2-3501 of the California Administrative Code, Title 24.

A common measure of transmission loss is the Sound Transmission Class (STC). STC ratings are not directly comparable to A-weighted noise reduction, and must be corrected for the spectral content of the noise source.

5.7 USE OF VEGETATION

It is often supposed that trees and other vegetation can provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that as no visual path extends through the foliage) is required to achieve a 5 dBA attenuation of traffic noise. The use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and receiver by increasing ground absorption of sound. Vegetative barriers have been shown to reduce tire noise and other high frequency components of traffic noise. Planting of trees and shrubs is also of aesthetic and psychological value, and may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels may be largely unaffected.

5.8 SOUND ABSORBING MATERIALS

Absorptive materials such as fiberglass, foam, cloth, and acoustical tiles are used to reduce reflections or reverberation in closed spaces. Their outdoor use is usually directed toward reducing reflections between parallel noise barriers or other reflective surfaces. Maintenance of absorptive materials used outdoors is difficult because most such materials are easily damaged by sunlight and moisture. Their application as an outdoor noise control tool is limited to cases where the control of reflected noise is critical.

6.0 TECHNICAL REFERENCE DOCUMENT APPENDICES

STANISLAUS COUNTY NOISE ELEMENT OF THE GENERAL PLAN

APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
A-WEIGHTED SOUND LEVEL:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.
CNEL:	Community Noise Equivalent Level. The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
EQUIVALENT ENERGY LEVEL, L_{eq}:	The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
L_{dn}:	Day/Night Average Level. The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
NOTE: CNEL and L_{dn} represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the equivalent energy noise exposure for a shorter time period, typically one hour.	
L_{max}:	The maximum A-weighted noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90} , L_{50} , etc.)
NOISE EXPOSURE CONTOURS:	Lines drawn about a noise source indicating constant energy levels of noise exposure. CNEL and L_{dn} are the descriptors utilized herein to describe community exposure to noise.

APPENDIX B

DRAFT COMMUNITY NOISE CONTROL ORDINANCE

Chapter 0.00

NOISE CONTROL

Sections:

- 0.00.010 Purpose.
- 0.00.020 Definitions.
- 0.00.030 Noise measurements criteria.
- 0.00.040 Exterior noise standards.
- 0.00.050 Interior noise standards.
- 0.00.060 Noise source exemptions.
- 0.00.070 Air conditioning and refrigeration.
- 0.00.080 Waste and garbage collection equipment.
- 0.00.090 Electrical substations.
- 0.00.100 Warning signs in places of public entertainment.
- 0.00.110 Variances.
- 0.00.120 Violation-Enforcement.

0.00.010 Purpose.

The Board of Supervisors declares and finds that excessive noise levels are detrimental to the public health, welfare and safety and contrary to the public interest as follows:

- A. By interfering with sleep, communication, relaxation and the full use of one's property.
- B. By contributing to hearing impairment and a wide range of adverse physiological and psychological stress conditions; and
- C. By adversely affecting the value of real property.

It is the intent of this chapter to protect persons from excessive levels of noise within or near a residence, school, church, hospital or public library and to warn persons of the hazards of excessive noise in places of public entertainment.

0.00.020 Definitions.

The following words, phrases and terms as used in this chapter shall have the following meanings:

- A. **"Ambient noise level"** means the composite of noise from all sources excluding the alleged offensive noise. In this context it represents the normal or existing level of environmental noise at a given location for a specific time of the day or night.
- B. **"A weighted sound level"** means the sound level in decibels as measured with a sound level meter using the "A" weighted network (scale) at slow meter response. The unit of measurement is referred to herein as dBA.
- C. **"Construction"** means construction, erection, enlargement, alteration, conversion or movement of any building, structures or land together with any scientific surveys associated therewith.
- D. **"Cumulative period"** means an additive period of time composed of individual time segments which may be continuous or interrupted.
- E. **"Decibel"** means a unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base ten of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.
- F. **"Emergency work"** means the use of any machinery, equipment, vehicle, manpower or other activity in a short term effort to protect, or restore safe conditions in the community, or work by private or public utilities when restoring utility service.
- G. **"Fixed noise source"** means a device, machine or combination thereof which creates sounds while fixed or stationary, including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.
- H. **"Hospital"** means any building or portion thereof used for the accommodation and medical care of sick, injured or infirm persons including rest homes and nursing homes.
- I. **"Impulsive noise"** means a noise of short duration, usually less than one second, with an abrupt onset and rapid decay.

- J. **"Intruding noise level"** means the sound level created, caused, maintained or originating from an alleged offensive source, measured in decibels, at a specified location while the alleged offensive source is in operation.
- K. **"Mobile noise source"** means any source other than a fixed noise source.
- L. **"Noise disturbance"** means any sound which violates the quantitative standards set forth in this chapter.
- M. **"Residential property"** means a parcel of real property which is developed and used either in whole or in part for residential purposes.
- N. **"School"** means public or private institutions conducting regular academic instruction at preschool, kindergarten, elementary, secondary or collegiate levels.
- O. **"Pure tone noise"** means any noise which is distinctly audible as a single pitch (frequency) or set of pitches. For the purposes of this ordinance, a pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies of 500 Hz and above and by 8 dB for center frequencies between 160 and 400 Hz and by 15 dB for center frequencies less than or equal to 125 Hz.
- P. **"Sound level meter"** means an instrument meeting American National Standard Institute (ANSI) Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

0.00.030 Noise Measurement Criteria.

Any noise measurement made pursuant to the provisions of this chapter shall be made with a sound level meter using the "A" weighted network (scale) at slow meter response. Fast meter response shall be used for impulsive type sounds. Calibration of the measurement equipment utilizing an acoustical calibrator certified by its manufacturer to be in compliance with National Bureau of Standards (NBS) reference calibration levels shall be performed immediately prior to recording noise level data.

Exterior noise levels shall be measured within fifty feet of the affected residence, school, hospital, church or public library. Where practical, the microphone shall be positioned three to five feet above the ground and away from reflective surfaces.

Interior noise levels shall be measured within the affected dwelling unit, at points at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration. Reported interior noise levels shall be determined by taking the arithmetic average of the readings taken at the various microphone locations.

0.00.040 Exterior Noise Standards.

- A. It is unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any affected residence, school, hospital, church or public library to exceed the noise level standards as set forth in the following table:

<u>Noise Level Standards, dBA</u>			
Category	Cumulative Number of minutes in any one-hour time period	Daytime	Nighttime
		7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

- B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

- C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.
- D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

0.00.050 Residential Interior Noise Standards.

- A. It is unlawful for any person, at any location within the unincorporated area of the County, to operate or cause to be operated within a dwelling unit, any source of sound or to allow the creation of any noise which causes the noise level when measured inside another dwelling unit to exceed the noise level standards as set forth in the following table:

		<u>Noise Level Standards, dBA</u>	
Category	Cumulative Number of minutes in any one-hour time period	Daytime	Nighttime
		7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
1	5	45	35
2	1	50	40
3	0	55	45

- B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.
- C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

- D. If the intruding noise source is continuous and cannot reasonably be discontinued to stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

0.00.060 Noise Source Exemptions.

The following activities shall be exempted from the provisions of this chapter.

- A. Activities conducted in public parks, public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events.
- B. Any mechanical device, apparatus or equipment used, related to, or connected with emergency activities or emergency work.
- C. Noise sources associated with construction, provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day except Saturday or Sunday, or before 7:00 a.m. or after 5:00 p.m. on Saturday or Sunday.
- D. Noise sources associated with the maintenance of residential property provided such activities take place between the hours of 6:00 a.m. and 9:00 p.m. on any day except Saturday or Sunday, or between the hours of 7:00 a.m. and 9:00 p.m. on Saturday or Sunday.
- E. Noise sources associated with a lawful commercial or industrial activity caused by mechanical devices or equipment, including air conditioning or refrigeration systems, installed prior to the effective date of this chapter; that this exemption shall expire 12 months after the effective date of this chapter.
- F. Noise sources associated with the collection of waste or garbage from property devoted to commercial or industrial uses.
- G. Noise sources associated with seasonal agricultural packing operations provided that noise levels produced by such operations do not exceed the exterior noise level standards set forth in Section 0.00.040 when measured as provided in Section 0.00.030 for a cumulative period of more than 90 days out of the year.

H. Any activity to the extent regulation thereof has been preempted by state or federal law.

0.00.070 Residential Air Conditioning and Refrigeration Systems.

Notwithstanding the provisions of Section 0.00.040 where the intruding noise source when measured as provided in Section 0.00.030 is an existing residential air conditioning or refrigeration system or associated equipment, the exterior noise level shall not exceed fifty-five (55) dBA. For residential air conditioning or refrigeration systems or associated equipment installed after the effective date of this chapter, the exterior noise level when measured as provided in Section 0.00.030 shall not exceed fifty (50) dBA.

0.00.080 Waste and Garbage Collection Equipment.

Notwithstanding the provisions of Section 0.00.040, the collection of waste or garbage from residential property by persons authorized to engage in such activity, and who are operating truck-mounted loading or compacting equipment, shall not take place before 6:00 a.m. or after 7:00 p.m. The noise level created by such activities when measured at a distance of fifty (50) feet in an open area shall not exceed the following standards:

1. Eighty-five (85) dBA for equipment in use, purchased or leased prior to the effective date of this chapter;
2. Eighty (80) dBA for new equipment purchased or leased after the effective date of this chapter.

0.00.090 Electrical Substations.

Notwithstanding the provisions of Section 0.00.040, noise sources associated with the operation of electrical substations shall not exceed fifty (50) dBA when measured as provided in Section 0.00.030.

0.00.100 Warning signs in places or public entertainment.

It is unlawful for any person to operate or permit the operation or playing of any loudspeaker, musical instrument, motorized racing vehicle, or other source of sound for public entertainment within a building or structure wherein the

noise level exceeds ninety-five (95) dBA as determined using the slow response of a sound level meter at any point normally occupied by a customer, without a conspicuous and legible sign stating: "WARNING! SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT."

0.00.110 Variances.

- A. The owner or operator of a noise source for which it has been determined violates any of the provisions of this chapter may file an application for variance from strict compliance with any particular provisions of this chapter where such variance will not result in a hazardous condition or a nuisance and strict compliance would be unreasonable in view of all the circumstances. The owner or operator shall set forth all actions taken to comply with such provisions, and the reasons why immediate compliance cannot be achieved. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership or fixed sources under common ownership on a single property may be combined into one application.
- B. Upon receipt of the application and within thirty (30) days, the County Environmental Resources Department shall either (1) approve such request in whole or in part, (2) deny the request, or (3) refer the request directly to the Board of Supervisors for action thereon in accordance with the provisions of this chapter. In the event the variance is approved, reasonable conditions may be imposed which may include restrictions on noise level, noise duration and operating hours, an approved method of achieving compliance and a time schedule for its implementation. The decision of the County Environmental Resources Department is subject to appeal to the Board of Supervisors by filing a written appeal not later than fifteen (15) days following the mailing of the decision to the applicant.
- C. Factors which the County Environmental Resources Department or Board of Supervisors must consider shall include but not be limited to the following:
 - 1. Uses of property within the area affected by the noise;
 - 2. Factors related to initiating and completing all remedial work;
 - 3. Age and useful life of the existing noise source;
 - 4. The general public interest, welfare and safety.

- D. The Board of Supervisors may grant variances from provisions of this chapter subject to such terms, conditions and requirements as may be deemed reasonable to achieve compliance with the provisions and intent of this chapter.

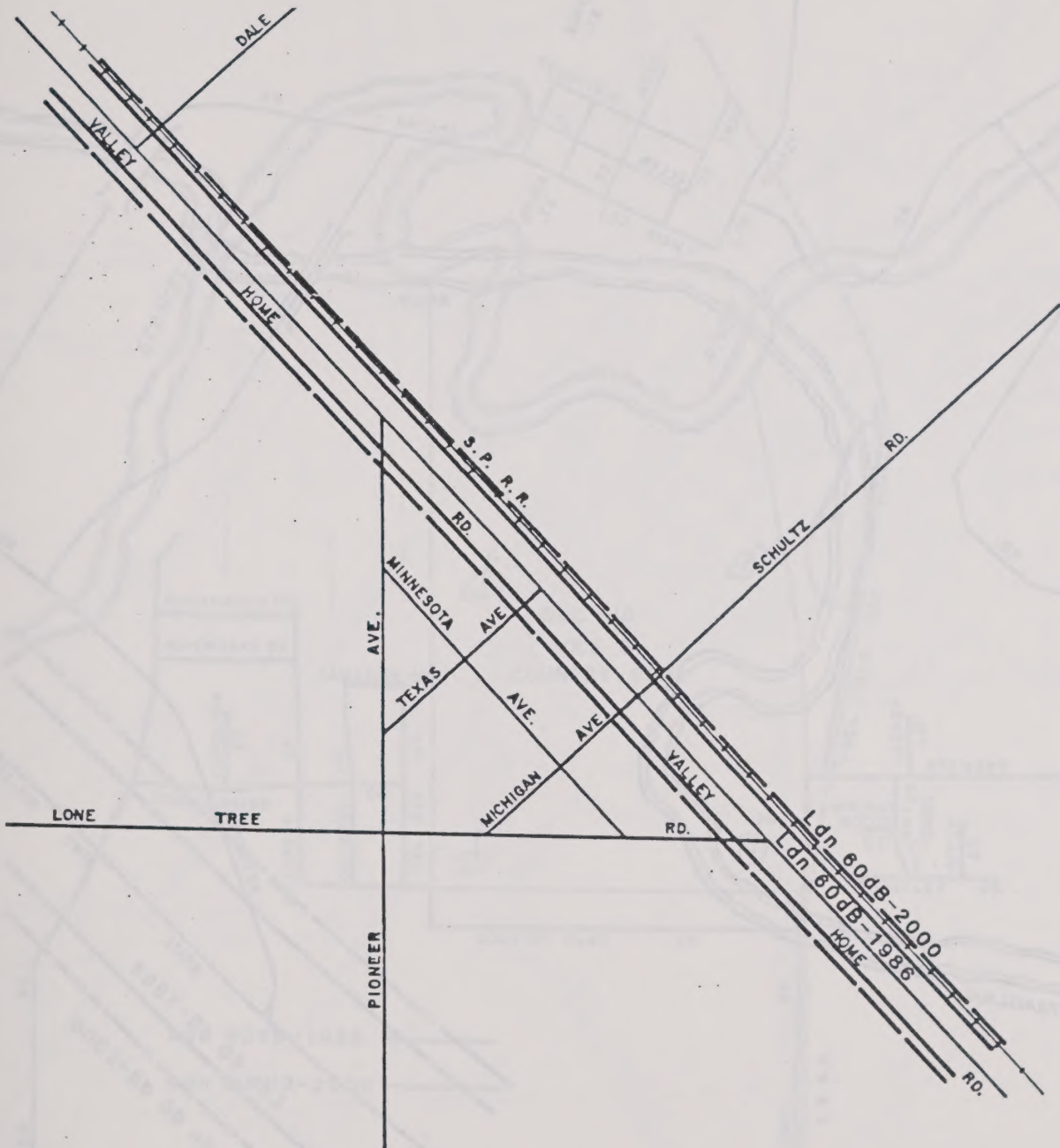
0.00.120 Violation-Enforcement.

The violation of any of the provisions of this chapter shall be an infraction punishable as provided in Section _____ of this code. The provisions of this chapter may also be enforced by an injunction issued out of the Court of jurisdiction. Any violation of the provisions of this chapter shall be deemed to be a public nuisance.

The County Environmental Resources Department shall enforce the provisions of this chapter. Right of entry for inspection shall be as provided in Section _____ of this code.

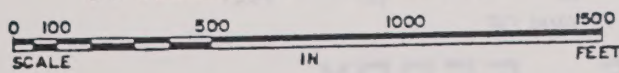
APPENDIX C
NOISE EXPOSURE MAPS

C-1 Valley Home

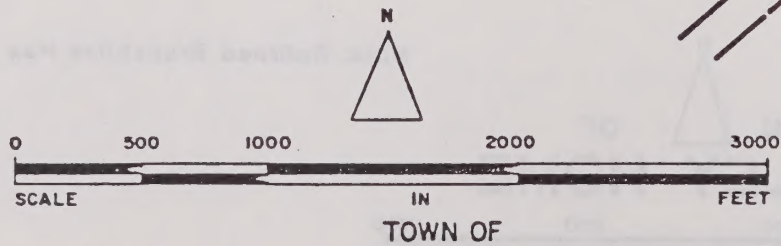


Note: Railroad Branchline Has Been Abandoned

TOWN OF
VALLEY HOME

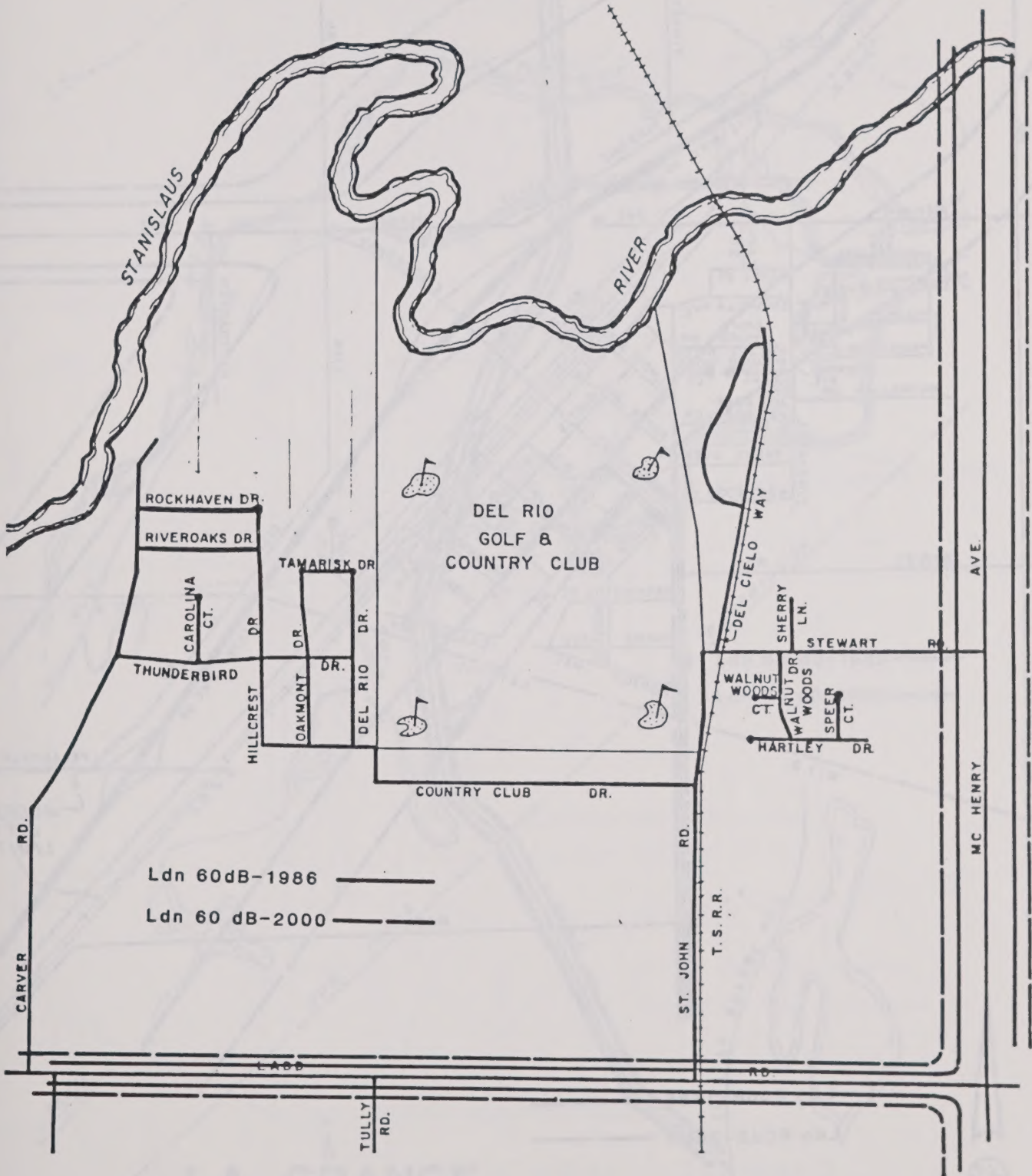


C-2 Knights Ferry

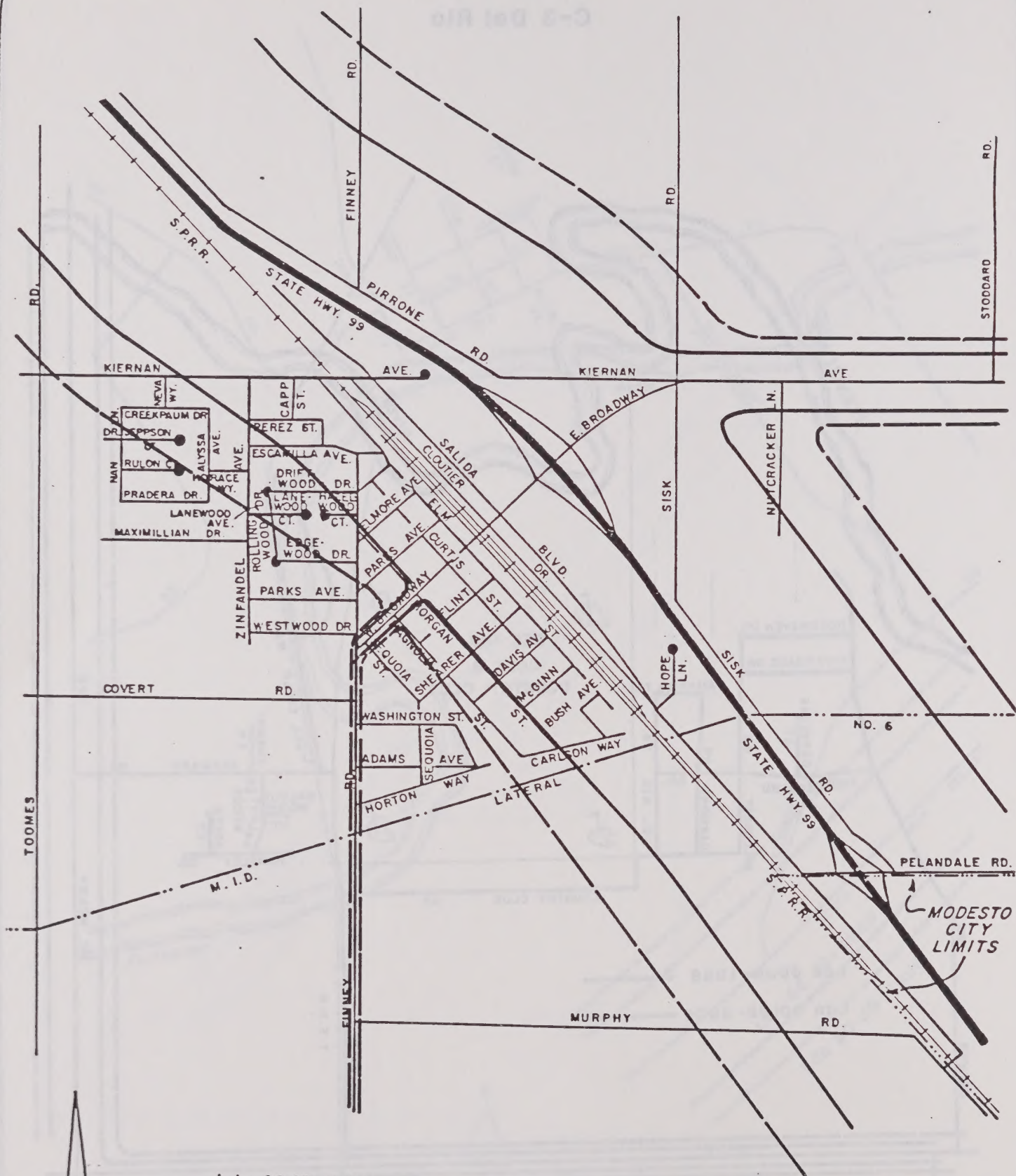


TOWN OF
KNIGHTS FERRY

C-3 Del Rio



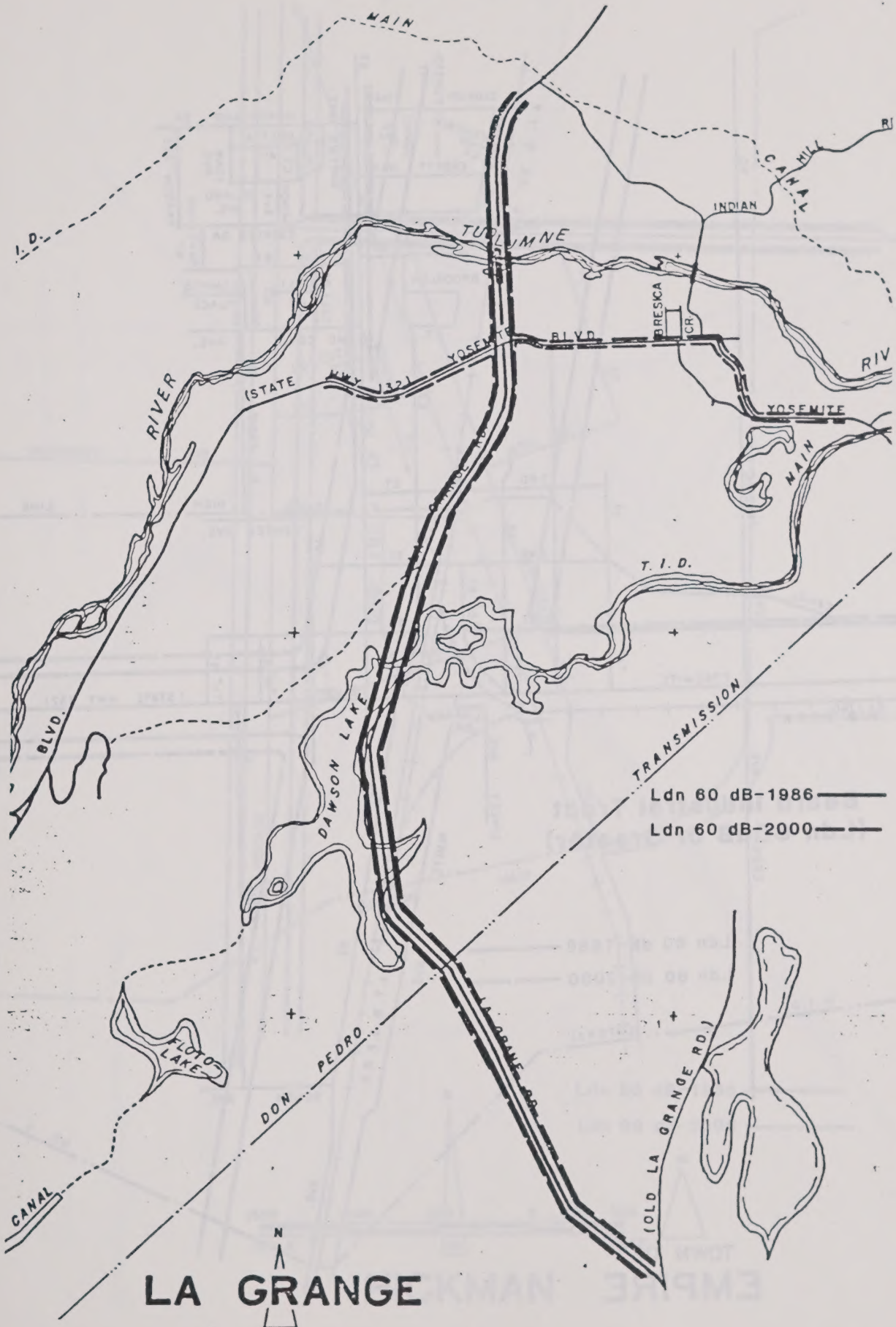
C-4 Salida



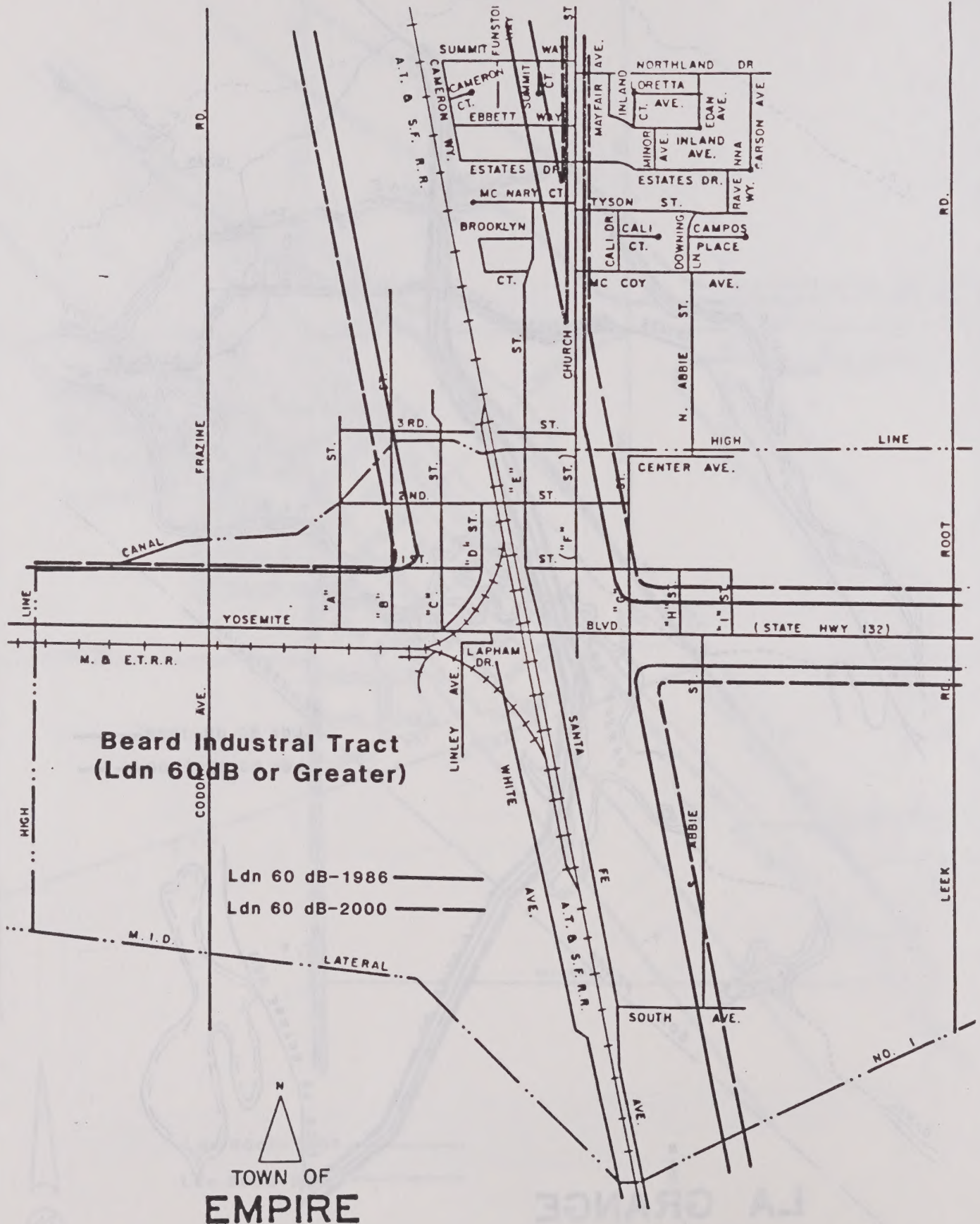
Ldn 60dB-1986 —————
 Ldn 60dB-2000 —————



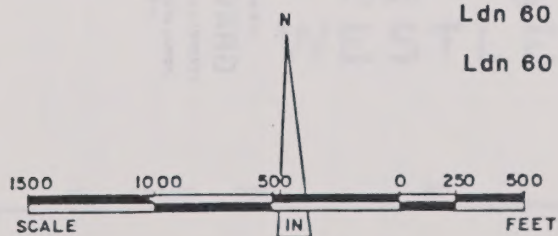
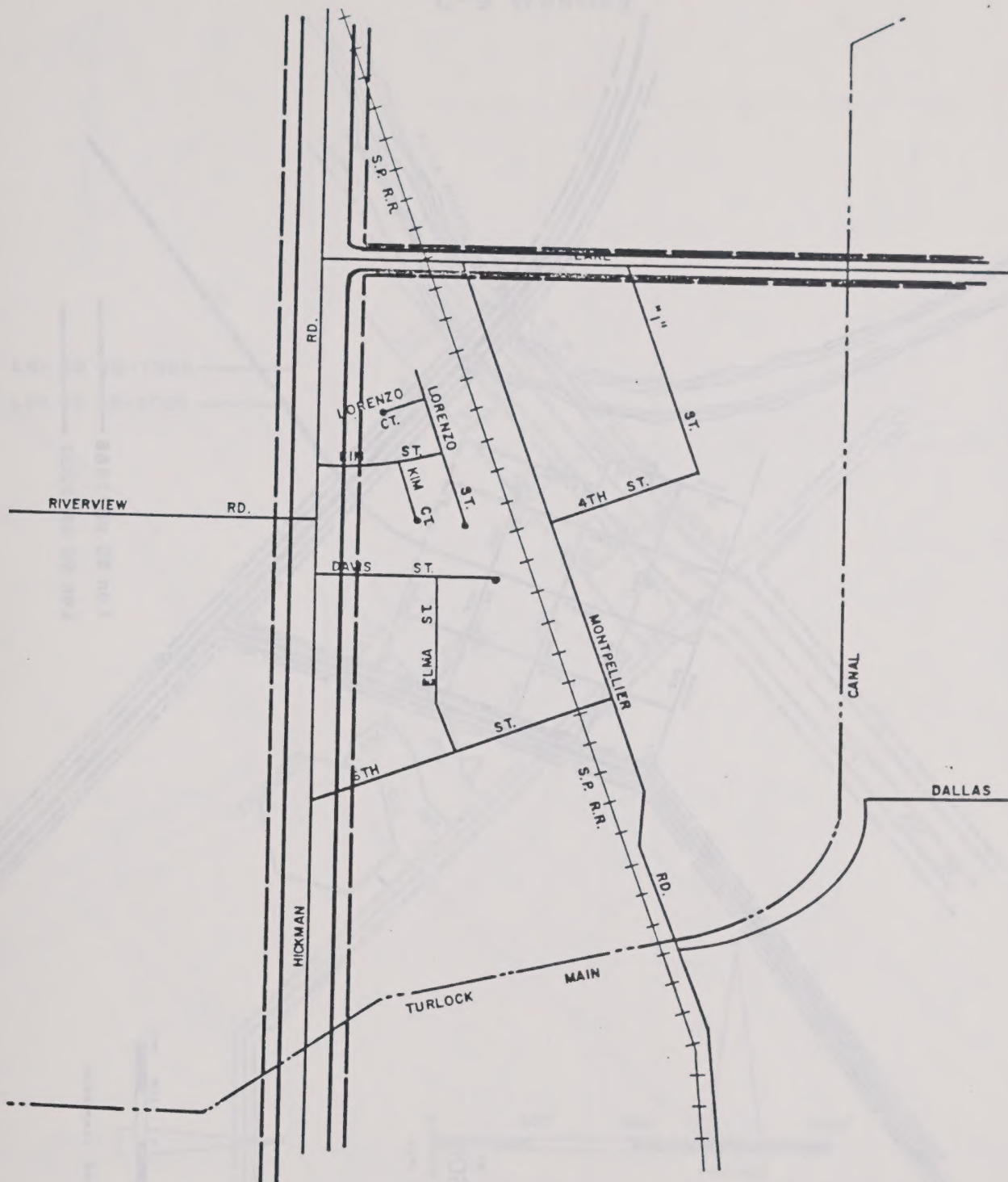
C-5 La Grange



C-6 Empire



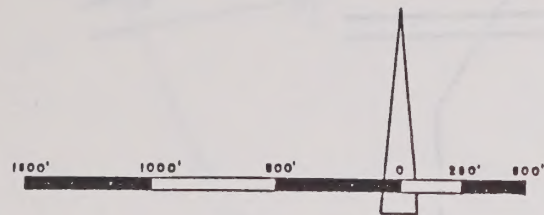
C-7 Hickman



Ldn 60 dB-1986 ———
Ldn 60 dB-2000 - - - - -

HICKMAN

TOWN OF
GRAYSON
STANISLAUS COUNTY
POPULATION 1980-
488

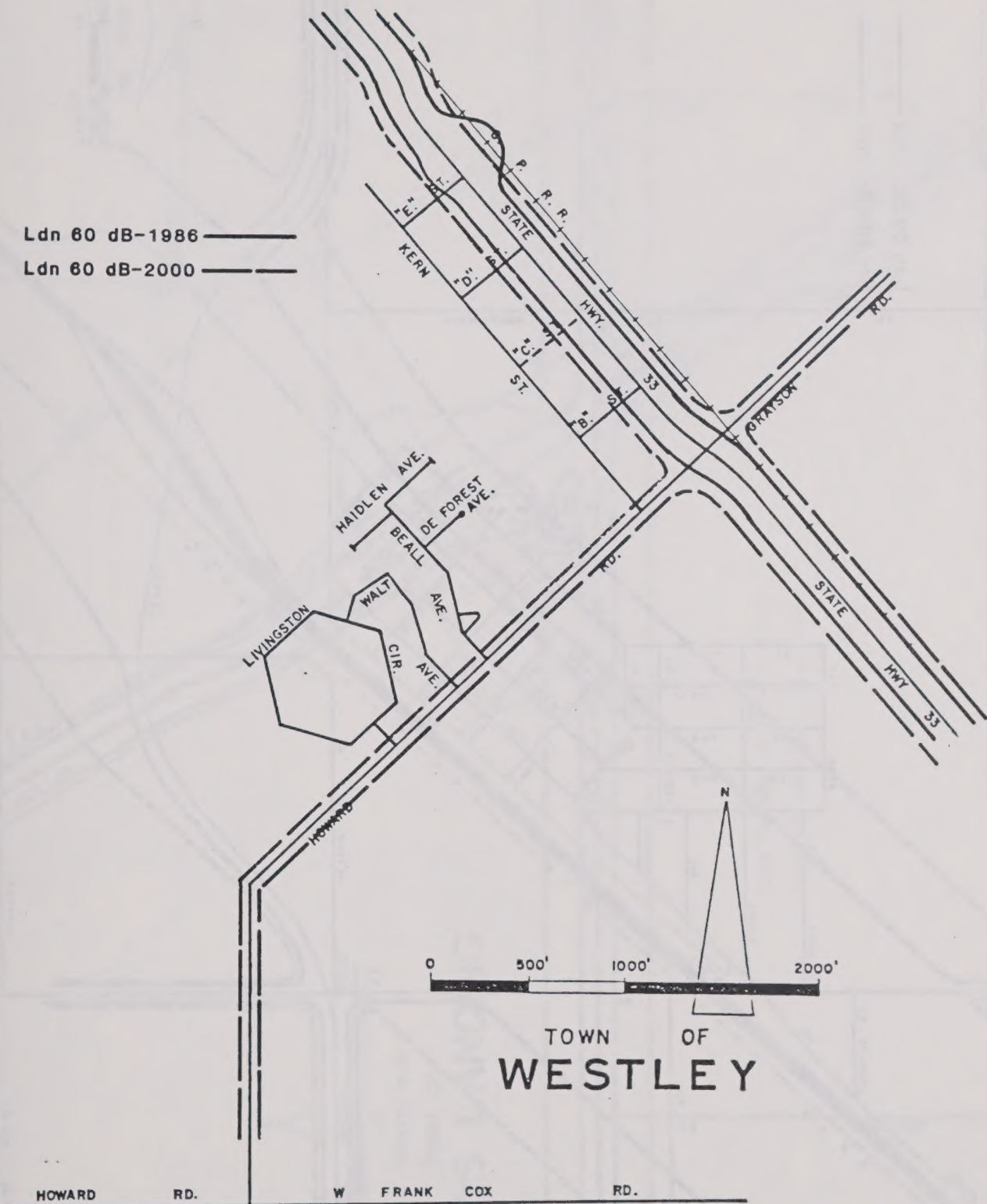


STANISLAUS COUNTY PLANNING COMMISSION

Ldn 60 dB-1988 _____

Ldn 60 dB-2000 _____

C-9 Westley



[illegible]

Ldn 80 dB-2000 ————

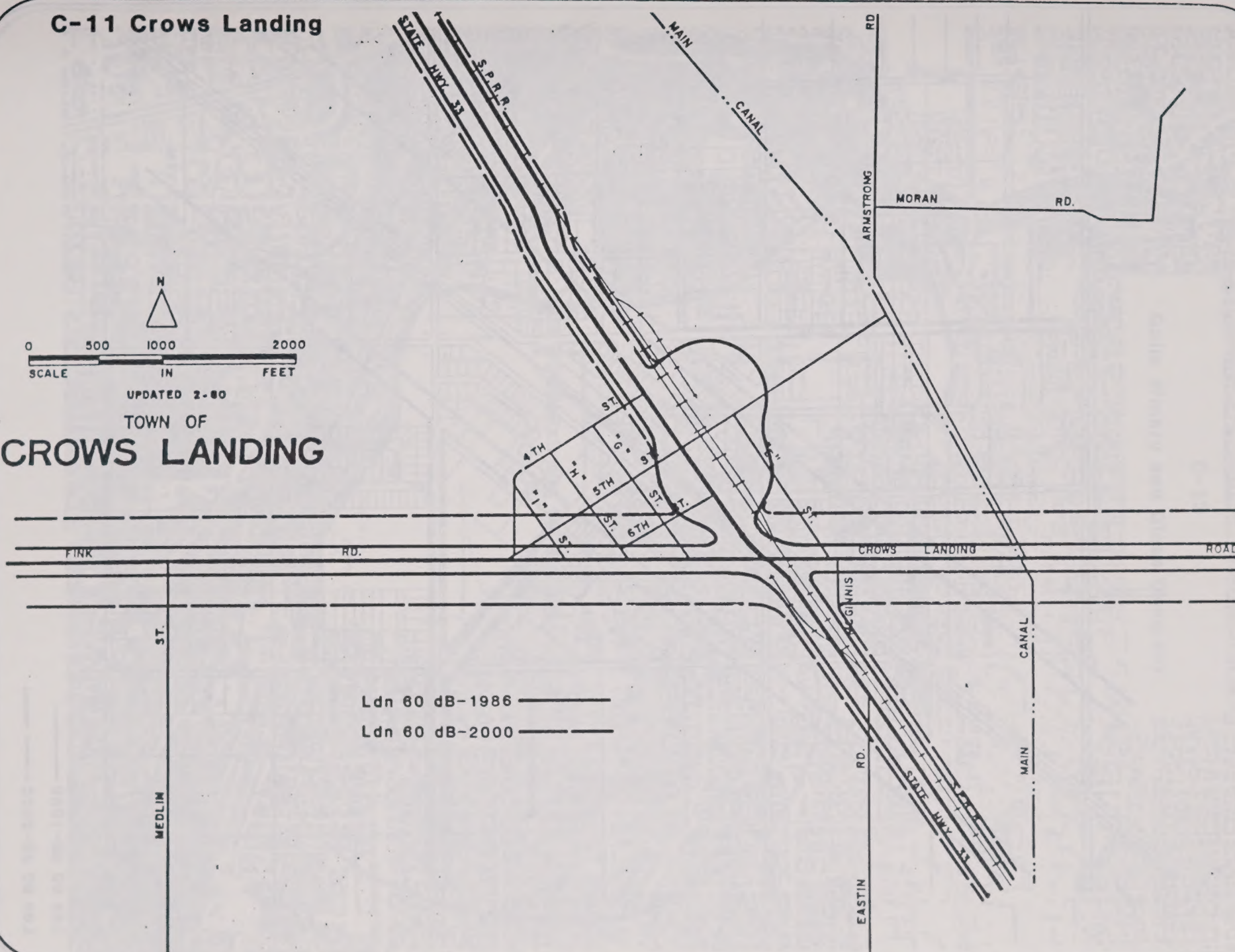
T. I. D. LAT. NO. 21/2

LATERAL NO 3

GABRIEL

A graphic scale bar is shown below the map. It is marked with 0, 500, 1000, and 2000. The bar is divided into segments for inches and feet. A north arrow points upwards.

A map of the Town of Crows Landing. At the top center is a north arrow pointing upwards, labeled 'N'. Below the north arrow is a scale bar with markings at 0, 500, 1000, and 2000. The scale bar is labeled 'SCALE' at the 0 mark, 'IN' at the 1000 mark, and 'FEET' at the 2000 mark. Below the scale bar is the text 'UPDATED 2-80'. At the bottom of the map is the text 'TOWN OF CROWS LANDING' in large, bold, capital letters.



C-12 Denair

Map showing noise contours (Ldn 60 dB) for the Denair area, comparing 1986 (solid line) and 2000 (dashed line) data. The map includes major roads (Highway 99, Highway 101, Highway 103) and local streets (Main St, Turlock St, Denair Blvd). Key locations marked include Denair Unified School District, Denair High School, and various residential areas. The 2000 noise contour is generally higher than the 1986 contour, indicating increased noise levels over time.

Legend:

- Ldn 60 dB-1986 (solid line)
- Ldn 60 dB-2000 (dashed line)

Ldn 60 dB-2000 _____

C-13

Gallo Winery and Glass Company

44dn 60dB(Existing Conditions)

An aerial photograph of an industrial and residential area. A large, irregularly shaped industrial facility, identified as the Gallo Winery and Glass Company, is located in the center-left. To its right is a dense residential neighborhood with a grid-like street pattern. A solid black line, representing a noise contour, originates from the industrial facility and extends towards the residential area. The text '44dn 60dB(Existing Conditions)' is printed near the start of this line. The map is oriented with the industrial facility on the left and the residential area on the right.

Chapter V
Safety

Section 65302 of the California Government Code requires that every jurisdiction in California adopt a Safety Element "for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards."

Stanislaus County could be affected by many of these factors. The only potential hazard that is specifically listed which could not affect Stanislaus County is a tsunami (commonly called a tidal wave). One type of ground failure, subsidence, has not been a problem in Stanislaus County and is not expected to be a problem.

SEISMIC AND GEOLOGIC HAZARDS

Earthquakes originate as movement or slippage occurring along an active fault. These movements generate shock waves that result in ground shaking. Structures of all types, if not designed or constructed to withstand ground shaking, may suffer severe damage or collapse. Likewise, some slopes will collapse due to the soil or geological characteristics resulting in hazard both in terms of collapse of structures located thereon, or collapse of structures within the path of resulting land slides.

There are several faults known to exist within Stanislaus County. In the extreme eastern part of the County, the Bear Mountain and Melones faults are found, though believed to have been inactive for the past 150 million years. No faults are currently known to exist within the valley portion of the County. Within the Diablo Range, the most recent movements were along the Tesla-Ortigalita fault approximately five million years ago, although earthquake activity without surface fracturing or faulting is still common. Since 1930, one earthquake epicenter of a magnitude greater than 4.0 on the Richter Scale was recorded in Stanislaus County. On June 27, 1986 an earthquake with a magnitude of 3.7 on the Richter Scale occurred with an epicenter several miles west of Crows Landing. Future earthquakes of similar or greater magnitudes can be expected. The map on page 247 indicates the location of the epicenter and the known faults in Stanislaus County.

The State of California Division of Mines and Geology has published proposed maps of an area to be included in an Alquist-Priolo Special Studies Zone. The area is along the Ortigalita Fault in the Diablo Range and extends into Stanislaus County approximately 7 miles. The zone is 1000 feet wide centered on the identified fault. As an Alquist-Priolo Special Study Zone, development and parcel divisions cannot be approved on land within this zone unless a geological report is completed at the applicant's expense and reviewed by

another geologist hired by the County. The maps became effective on July 1, 1986. The text of the Alquist-Priolo Special Studies Zones Act can be found in Section 660 et. seq. of Article 3, Chapter 2, Division 1 of the California Public Resources Code. Guidelines for implementation of the Act are found in Section 3500, Article 3, Subchapter 1, Chapter 8, Division 2, Title 14 of the California Administrative Code. The location of the Alquist-Priolo Special Study Zone is shown on the map on page 247.

Numerous earthquakes occur each year along California's major faults which are the San Andreas, Calaveras, Hayward and Nacimiento faults. Information furnished by the State Department of Mines and Geology and the State Office of Emergency Services indicates that ground shaking along these faults can produce damage within the County to reach varying intensities rated on the Modified Mercalli Intensity Scale of 1931. The eastern half of the County can be expected to have shaking to an intensity of VI or VII, producing minor to moderate damage. The western half of the county can expect to receive shaking to an intensity of VII or VIII Mercalli which can cause considerable damage to ordinary structures. The area around the City of Newman may have shaking intensity of IX or X. This may be considered a major hazard area. A copy of the Modified Mercalli Intensity Scale is shown in Table 4-1 on page 248.

New buildings in Stanislaus County are constructed to prevent loss of life as a result of an earthquake. Older buildings, however, especially unreinforced masonry buildings could collapse causing injury and loss of life. According to a report in 1979 to the California Seismic Safety Committee¹, a building should be considered hazardous to life in the event of an earthquake if the building:

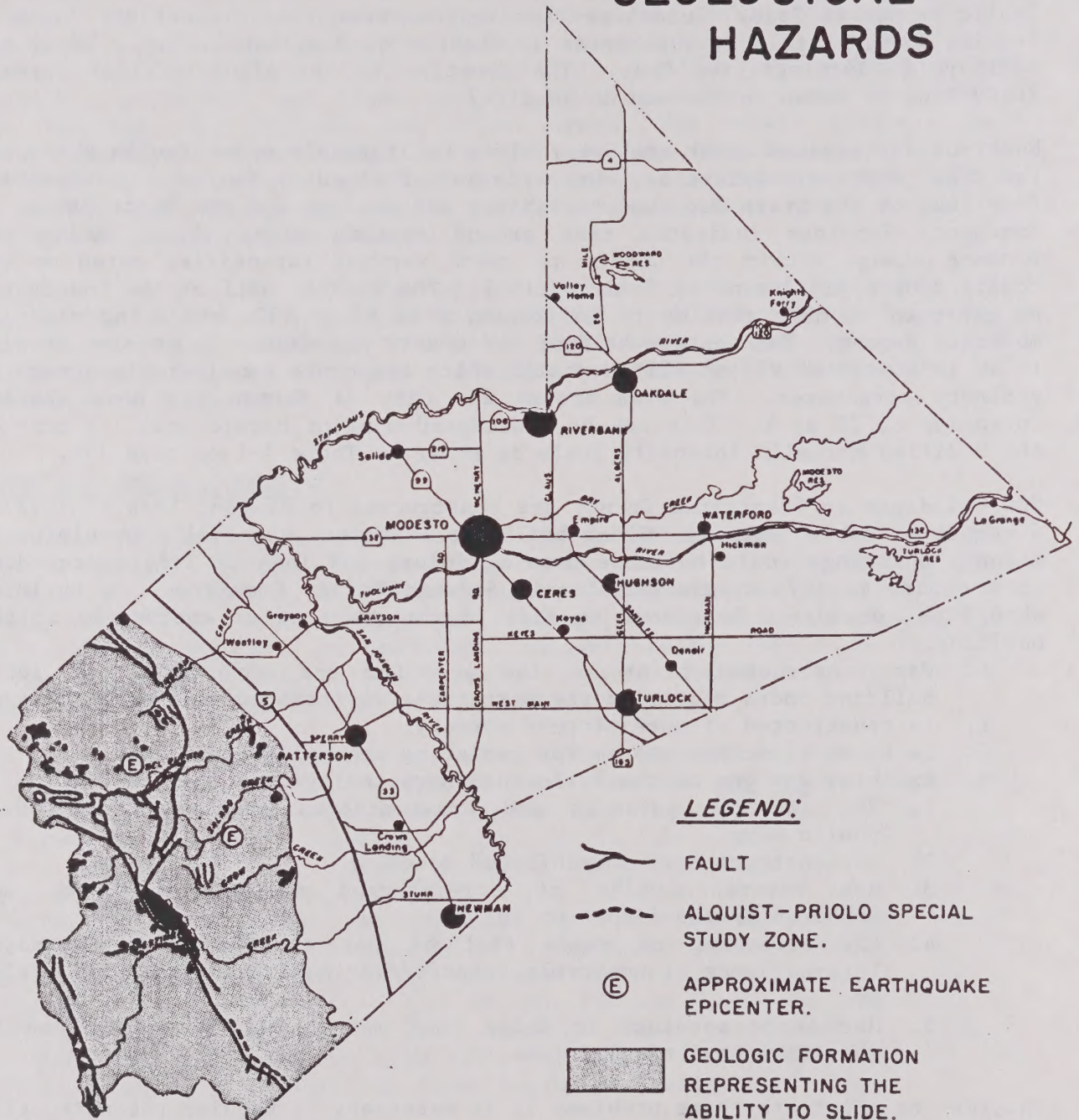
- A. Was constructed prior to the adoption and enforcement of local building codes requiring the earthquake resistant design of buildings;
- B. Is constructed of unreinforced masonry;
- C. Lacks an effective system for resisting lateral forces; and
- D. Exhibits any one of the following characteristics:
 1. Has exterior parapets and ornamentation that may fall on a public way;
 2. Is constructed of unreinforced masonry;
 3. Has exterior walls of unreinforced masonry that are not anchored to the floors or roof;
 4. Has sheathing or roofs that is not capable of withstanding lateral loads or uniformly transferring horizontal loads to walls; or
 5. Has large openings in walls that may result in damage due to torsional (twisting) forces.

In order to eliminate these problems it is necessary to require reconstruction to at least provide for the adequacy of: (a) unreinforced masonry bearing walls, (b) the anchorage of exterior parapets and ornamentation, (c) the anchorage of unreinforced bearing walls to the floors and roof, (d) floor and roof diaphragms, and (e) the development of a complete bracing system to resist horizontal wind and earthquake forces.

1

Hazardous Buildings: Local Programs to Improve Life Safety,
(Hazardous Buildings Committee, Seismic Safety Commission,
Sacramento), 1979.

GEOLOGICAL HAZARDS



LEGEND:



FAULT



ALQUIST-PRIOLO SPECIAL
STUDY ZONE.



APPROXIMATE EARTHQUAKE
EPICENTER.



GEOLOGIC FORMATION
REPRESENTING THE
ABILITY TO SLIDE.



LANDSLIDE

SOURCES: GEOLOGY OF THE BOARDMAN QUADRANGLE, SANTA CLARA, STANISLAUS COUNTIES, CALIFORNIA; by Marshall E. Haddock, 1964.

GEOLOGICAL MAP OF CALIFORNIA, SAN JOSE SHEET, OLAF P. JENKINS EDITION. U.S.G.S.

PRELIMINARY EARTHQUAKE EPICENTER MAP OF CALIFORNIA, 1974 TO JUNE 30, 1970. The Resources Agency Department of Conservation, State of California.

State Division of Mines and Geology

ENVIRONMENTAL RESOURCES MANAGEMENT PLAN, GEOLOGY AND SEISMIC SAFETY; Stanislaus Area Association of Governments, 1974.

TABLE 4 -1

MODIFIED MERCALLI INTENSITY SCALE

- I. Not felt. Marginal and long-period effects of large earthquakes.
- II. Felt by persons at rest, on upper floors, or favorably placed.
- III. Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
- IV. Hanging objects swing. Vibration like passing of heavy trucks; or sensation of or sensation of a jolt like a heavy ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frames creak.
- V. Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate.
- VI. Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle).
- VII. Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
- VIII. Steering or motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
- IX. General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames cracked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake fountains, sand craters.
- X. Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
- XI. Rails bent greatly. Underground pipelines completely out of service.
- XII. Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Definition of Masonry A, B, C, D:

Masonry A - Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B - Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.

Masonry C - Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

Masonry D - Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Enforcing the retrofitting of buildings to meet earthquake standards is a difficult task. First, the County would have to commit staff to the project. In addition to being costly, this would require a policy decision on the part of the Board of Supervisors that the potential problems were of such dimensions that the cost, both to the County and to the landowner, is warranted. Second, the cost to the landowner might be prohibitive, at the very least causing construction impacts on the existing tenants, possibly relocation and rent increase. The report referenced above stated that it was unlikely that building owners could feasibly afford the cost of making the necessary improvements and that some sort of grant funds would be needed. Recently adopted SB 547 (Alquist) addresses the issue and may be the first step towards requiring retrofitting.

Aside from structural damage, earthquake activity can produce three other types of adverse effects. The first is ground failure, which itself is a factor in making some lands unsuitable for development. Virtually the entire area located west of Interstate 5 is composed of geological formations that, due to structure, slope, runoff, lack of vegetation, earthquake and human activity, are considered extremely susceptible to failure and sliding. On a California Division of Mines and Geology scale used to rate landsliding potential, this area is rated at five, the next to highest rating on a scale of six. The remainder of the area is rated at six. The prime reason is the generally unstable formation comprising the underlying geologic structure of the Diablo Range. In the winter of 1982-83, saturation of the soils in this area resulted in a considerable amount of damage to Del Puerto Canyon Road. The map on page 247 indicates the location of areas prone to ground failure.

There is a history of a number of slides throughout the Diablo Range in Stanislaus County. It is evident that the steep slopes and unstable geology of the area on the west side of the County, even without considering the very real possibility of an earthquake, present a substantial limitation to building. Construction is possible within this area but any proposals for significant development (anything other than the currently permitted two dwellings for every 160 acres) should include a geological report identifying potential problems and mitigation measures to be incorporated into the development plan. This may be difficult and costly.

The second adverse effect would be from a seiche (an earthquake-induced wave in a lake, reservoir, or harbor). Stanislaus County has three reservoirs of considerable size (Modesto, Turlock, and Woodward). An earthquake of sufficient magnitude could cause a seiche in one or more of these reservoirs. Although there is no way to stop such an occurrence, the effect can be minimized. No privately owned residences exist on the shores of the reservoirs as all of the land is controlled either by Stanislaus County or the State of California. The most severe hazard would exist if a seiche occurred while many people were using the reservoir for recreation. All reservoirs have personnel on duty whenever the reservoir is open who are trained to handle water-related emergencies.

The third effect would be caused by damage to a dam that results in dam failure. There are a number of dams, both in and out of the County on the east and west sides, which could produce flooding should they fail. There are requirements that the owners of dams prepare maps showing areas which would be flooded should the dams fail. Dam failure inundation maps are available for the dams on the Stanislaus and Tuolumne Rivers. Maps on pages 251 and 252 indicate the inundation areas of the upstream dams on the Stanislaus and Tuolumne Rivers. The Stanislaus County Department of Emergency Services is attempting to obtain more specific data so that evacuation plans and routes can be developed.

Policies 1, 2, 4, and 14 address seismic hazards.

FLOOD HAZARD

Flooding has been a major problem throughout the history of Stanislaus County, particularly with the encroachment of urban growth into flood plains. Major floods have occurred in 1861, 1938, 1950, 1955, and 1969. Significant flooding also occurred in 1983 along the San Joaquin River, in isolated stretches of the Tuolumne River and on smaller creeks such as Salado Creek.

The State Reclamation Board has identified and adopted designated floodways, defined in feet per second of flow, along the San Joaquin River, Stanislaus River, Tuolumne River and portions of Dry Creek (see map on page 254). The Department of Housing and Urban Development (HUD) has also developed flood hazard zones which are referenced in the County's Flood Control Ordinance and used for insurance purposes. Any non-agricultural encroachment into these areas requires special permits that are difficult to obtain and often costly to implement. Permits for encroachment into the designated floodways must be obtained from the Reclamation Board. Other permits are administered by the County. These measures still do not control flood hazards for existing development. Information regarding flood-prone areas as shown on the HUD maps is available in the Department of Public Works.

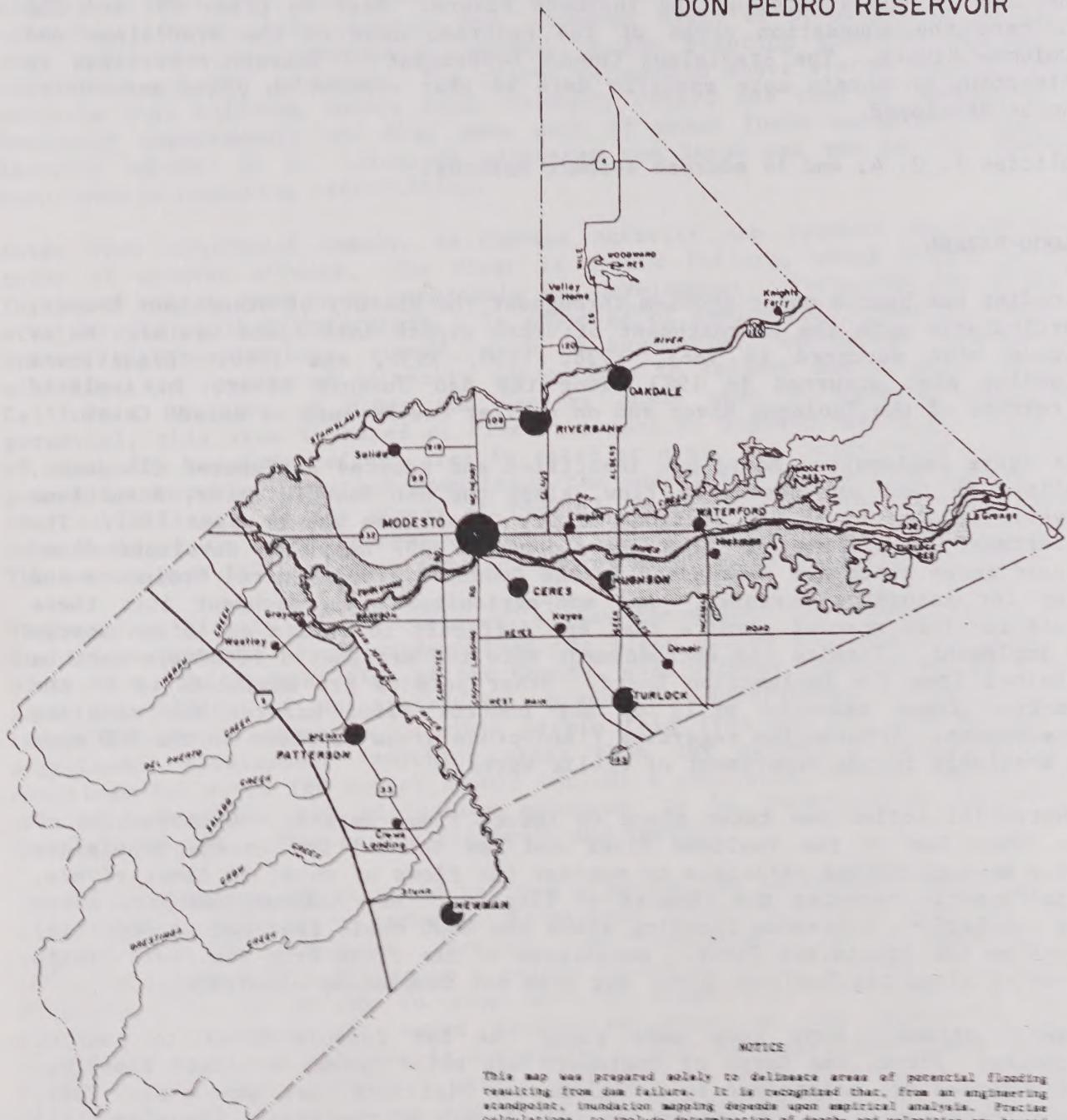
Substantial action has taken place to reduce flood hazards. Construction of Don Pedro Dam on the Tuolumne River and New Melones Dam on the Stanislaus River have permitted officials to monitor the flows of water in those rivers, significantly reducing the chances of flooding. New Melones Dam has, since its completion, prevented flooding above the 8000 cubic feet per second (cfs) level on the Stanislaus River. Regulation of the flows from Don Pedro limits flooding along the Tuolumne River but does not completely eliminate it.

Several attempts have been made along the San Joaquin River to control flooding. First, the Corps of Engineers has built levees to limit flooding. These levees are maintained by 9 Reclamation Districts (see map on page 256). Since these levees do not extend the full length of the river, flooding still occurs.

Second, there is a statewide flood control program which monitors, through the use of computers, the levels of various rivers in the State. If the operator at Don Pedro, for example, wants to release water, the release might not cause

INUNDATION AREA

DON PEDRO RESERVOIR

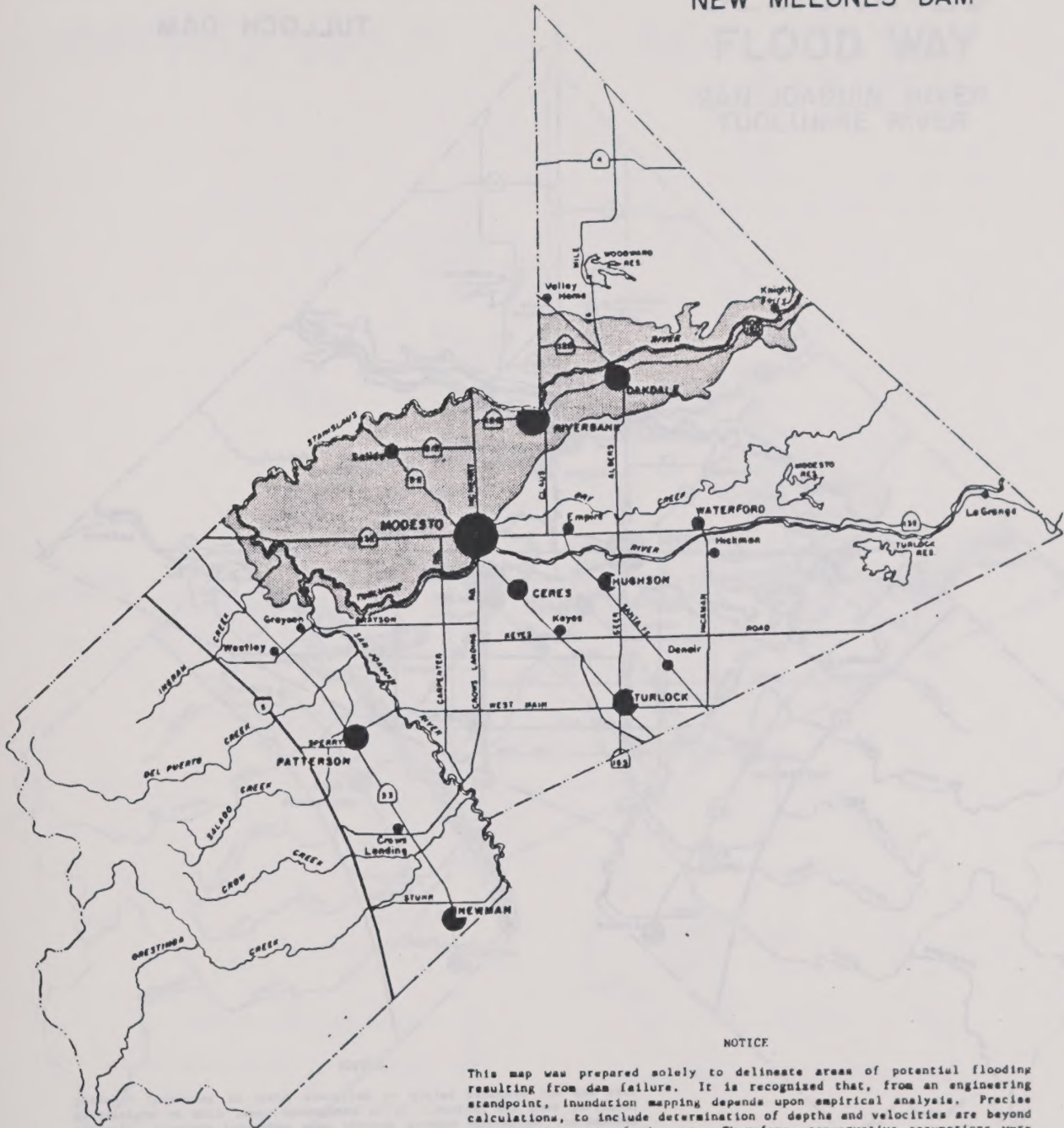


NOTICE

This map was prepared solely to delineate areas of potential flooding resulting from dam failure. It is recognized that, from an engineering standpoint, inundation mapping depends upon empirical analysis. Precise calculations, to include determination of depths and velocities are beyond the current state of the art. Therefore, conservative assumptions were made within the limits of good engineering judgment, as to the extent and rapidity of failure and as to the probable routes that flow would follow. Thus the inundation area shown encompasses all probable routes. The flow would not necessarily cover the entire area within the inundation boundary. This map is considered to be strictly a contingency measure and does not imply in any way that the dam is unsafe. Use of this map for any purpose other than for evacuation planning should be made with extreme caution and be within the limitations pointed out above.

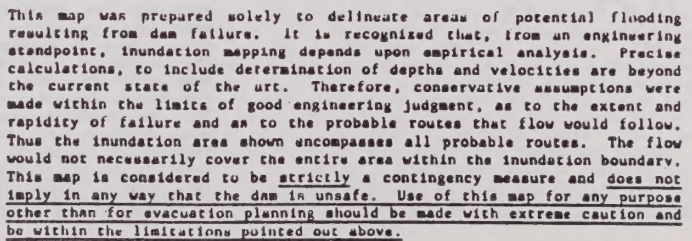
INUNDATION AREA

NEW MELONES DAM



NOTICE

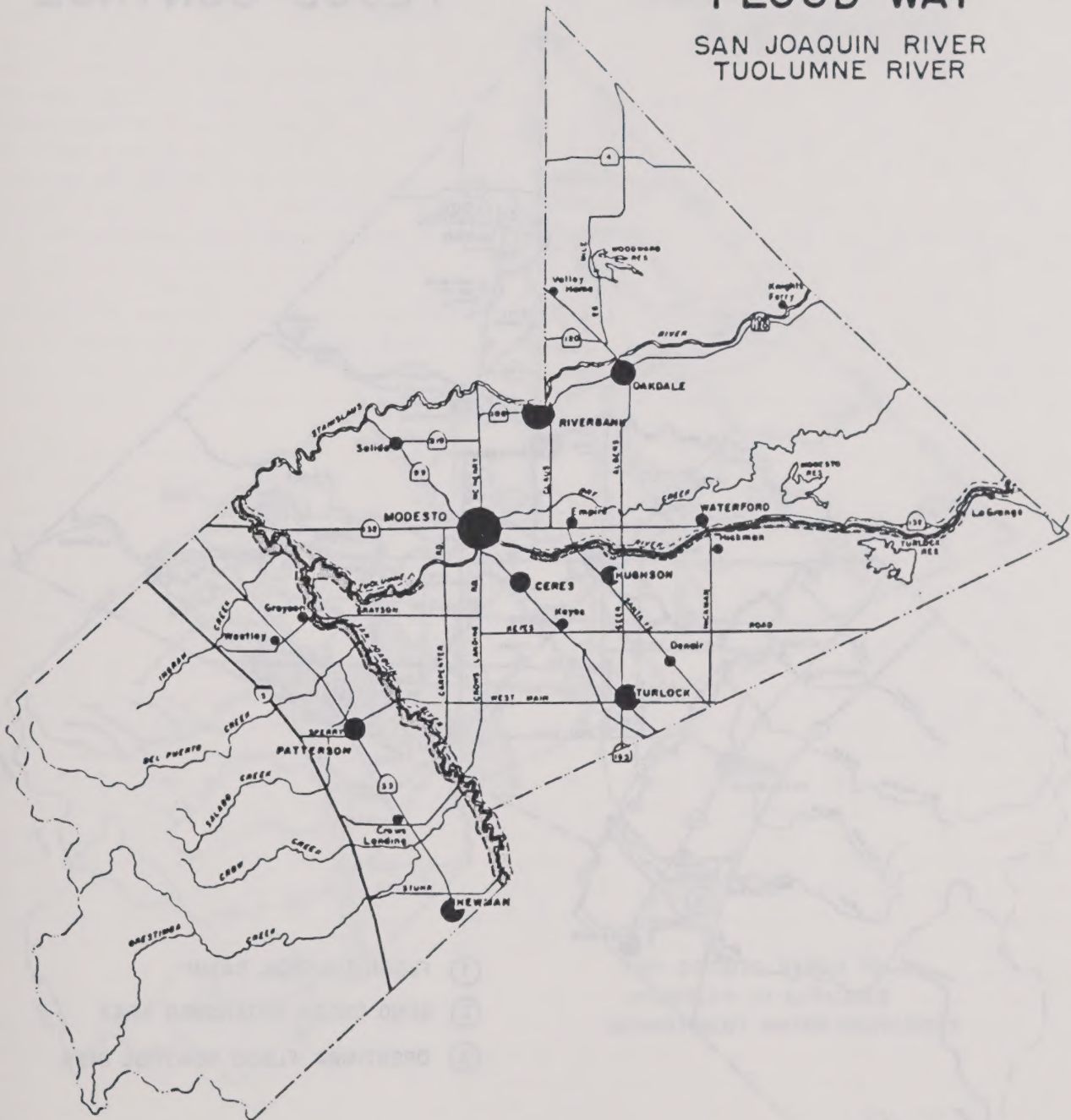
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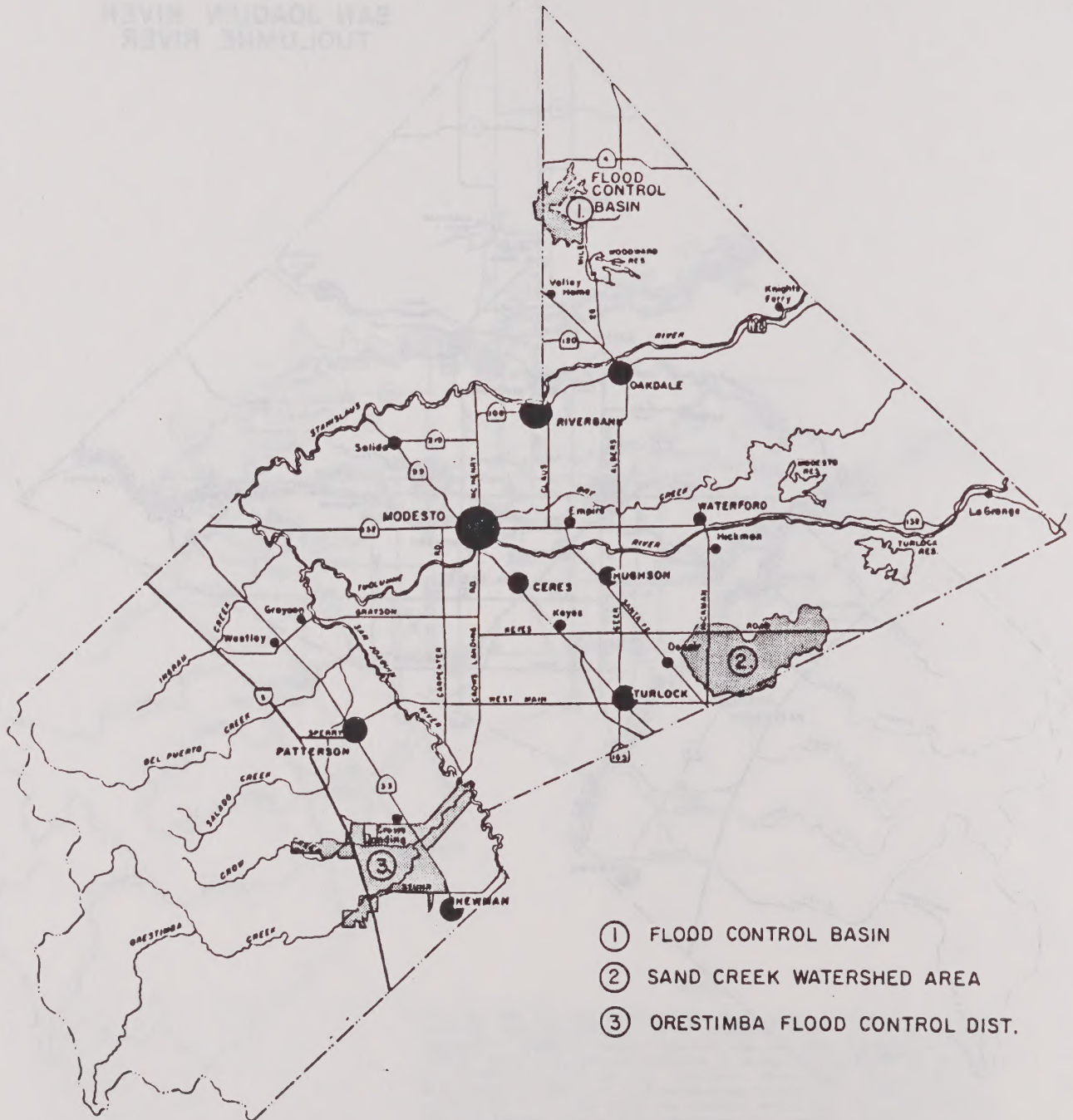
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DESIGNATED FLOOD WAY

SAN JOAQUIN RIVER
TUOLUMNE RIVER



FLOOD CONTROL



DISTRICTS

No.	Name	Area (sq. miles)	Population (1960)	Water Resources (cfs)
1	Colusa	1,100	100,000	1,000,000
2	Yuba	1,800	150,000	1,500,000
3	Sutter	1,200	120,000	1,200,000
4	Butte	1,500	140,000	1,400,000
5	Glenn	1,700	160,000	1,600,000
6	Colusa	1,100	100,000	1,000,000
7	Contra Costa	1,300	130,000	1,300,000
8	Alameda	1,400	140,000	1,400,000
9	San Francisco	1,600	160,000	1,600,000
10	Santa Clara	1,800	180,000	1,800,000
11	Santa Cruz	1,900	190,000	1,900,000
12	Monterey	2,000	200,000	2,000,000
13	San Benito	2,100	210,000	2,100,000
14	Fresno	2,200	220,000	2,200,000
15	Kings	2,300	230,000	2,300,000
16	Tulare	2,400	240,000	2,400,000
17	Kern	2,500	250,000	2,500,000
18	Los Angeles	2,600	260,000	2,600,000
19	Orange	2,700	270,000	2,700,000
20	Riverside	2,800	280,000	2,800,000
21	San Diego	2,900	290,000	2,900,000
22	Imperial	3,000	300,000	3,000,000
23	Nevada	3,100	310,000	3,100,000

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DEPARTMENT WATER RESOURCES

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any flooding on the Tuolumne but might affect the San Joaquin River. The operator informs the State of his intentions. The State then feeds this information into its computer along with all other available data to determine the effect of the proposed release. The State then coordinates the release of water from all of the dams so there is as little impact as possible on the rivers downstream (in the case of Don Pedro, the San Joaquin River). Don Pedro may be permitted to release its water while another dam elsewhere along the system may have to temporarily reduce its releases.

Presently, there is only one flood control district in the County. The boundaries of the Orestimba Flood Control District are shown on the map on Page 255. There is some discussion of forming flood control districts for Salado Creek (Patterson) and Sand Creek (Denair). Plans are being made to form such a district for the latter, although no specific boundary is yet proposed. The map on page 255 indicates the location of the Sand Creek watershed area. All or a portion of this watershed area is likely to be included in the flood control district.

Another significant type of flood damage can result from earthquake activity. The potential for dam failure is discussed in Section I of this Chapter.

Policies 1, 2 and 15 address flood hazards.

FIRE HAZARDS

Fire hazards consist of two types - urban fires or wildland fires. The causes of the two types of hazards and their effect differ. While urban fires result in injuries and loss of property, brush fires may result in loss of natural vegetation, loss of agricultural crops, erosion of the soil and intrusion of the eroded soil into lower lying areas where it may be deposited.

Urban Fires

Urban fire hazards are primarily those associated with commercial, industrial and residential structures and the activities that surround them. Most urban fires are caused by human activities, with the danger associated with any particular fire dependent upon the individual circumstances. Over the years standards for development have been improved to reduce the frequency and severity of such fires. Building codes have been revised to utilize the most up-to-date construction methods in an attempt to make new buildings as safe as possible. Fire walls are now required when buildings are built close together or near a property line. Electrical standards have changed to require safer construction.

Consequently, fire hazards are greatest in areas containing older buildings which do not meet current building codes. In addition these areas are more likely to be poorly maintained, increasing the likelihood of fires. Since most of the buildings in the unincorporated area of the County were built more than 20 years ago, the likelihood of urban fires is higher than in the unincorporated portions of the County than within the cities.

Property damage from urban fires can be financially substantial although in the majority of cases damage can be limited to few structures. Injuries and deaths are more frequent in residential fires than any other type since they occur in structures that are inhabited.

Wildland Fires

Four factors contribute to wildland fires: vegetation, climate, topography and people. Chaparral, grasslands and other wild plant life provide the major sources of fire fuel. Stanislaus County has a Mediterranean type of climate with cool, wet winters and hot, dry summers. The hot, dry summers in Stanislaus County produce large areas of extremely dry vegetation often located in areas where the topography enhances the spread of flames and prohibits access for fire fighting equipment. The existence of people in these areas increases the chances of fire.

Within Stanislaus County, the areas of potential wildland fires are the Diablo Range, generally located west of Interstate 5, and the Sierra Nevada foothills in the eastern portions of the County. According to the California State Division of Forestry, the majority of these areas are rated as having the highest possible critical fire weather frequency on an annual basis. This factor, combined with vegetation and slope percentage, produce overall fire ratings of moderate to high throughout the fire hazardous areas.

It should be noted that some wildland fires are necessary as an integral part of the ecosystem and are allowed to burn even after a fire suppression agency is capable of control. These areas are limited, however, and not permitted to endanger life or property.

Minimizing Fire Hazards

The County has developed several mechanisms for dealing with fire hazards. Building Code Standards require use of the safest electrical methods and separation between buildings for fire reasons. When separations are not maintained, walls must be built (commonly called fire walls) through which fire cannot burn for a specified time, usually one to four hours. This helps prevent the spread of urban fires. Some buildings whose use would be more susceptible to fire must have automatic sprinkler systems installed. Numerous other safety measures can be found in the Building Code.

The County Fire Warden's Office enforces a section of the County Code which requires removal of "all dirt, rubbish, weeds, . . . which constitute a fire menace or which is otherwise a menace to health or safety . . . " in urban areas. If the property owner does not remove the material, the Fire Warden's Office can do so and charge the cost of removal to the property owner. In addition the Fire Warden's Office has developed minimum fire flow requirements for new development. Table 4-2 on page 260 lists the requirements in existence as of April 1, 1986.

The Land Use Element of this General Plan requires that urban development occur through logical expansion of existing urban areas so that urban services (such as fire protection, public water, etc) can be provided. One reason for this requirement is that provision of public water reduces the effects of urban fires. The Circulation Element proposes road widths and standards that will provide adequate access for fire fighting equipment.

The Zoning Ordinance and Subdivision Ordinance also contain standards to minimize fire hazards. Among these provisions are minimum setbacks between dwellings and between buildings and streets as well as a prohibition on the creation of parcels without adequate access. The minimum width road (without special approval) is 50 feet.

The major impact of these measures has been directed towards current and future development. They do little to alleviate urban fire problems in older areas. The social and economic ramifications of attempting to mitigate the potential threat of fire hazardous structures are great. Issues to be faced include occupant safety and welfare, equitable treatment of building owners, possible relocation of occupants and minimization of overall adverse effects on the local economy. In the past some of these issues could have been addressed through the use of Community Development Block Grant (CDBG) funds, however, it appears that those funds may no longer be available. Both the Stanislaus County Building Department and the Department of Environmental Resources attempt to upgrade older buildings through the use of the Uniform Building Code, Uniform Housing Code, and health and safety laws. Both the legal authority and the available staff time is limited for this type of activity.

Policies 7, 9 and 14 address fire hazards.

Table 4-2

MINIMUM FIRE FLOW REQUIREMENTS

Fire flow shall be determined in accordance with the fire protection agency of the area and the design engineer shall check with the involved agency prior to design.

Existing Water Systems

~~In no case,~~ Where an established water system is present, which may be extended, and where the system is not substandard to these regulations, the fire flow shall ~~be not~~ ^{not be} less than:

- | | |
|---|----------------|
| 1. Lot density of three or more single family residential units per acre. | 1,000 gpm |
| 2. Duplex residential units, neighborhood business of one story. | 1,500 gpm |
| 3. Multiple residential, one and two stories; light commercial or light industrial. | 2,000 gpm |
| 4. Multiple residential, three stories or higher; heavy commercial or heavy industrial. | 2,500 gpm
) |

Exception: With the installation of an approved, supervised, automatic sprinkler system in accordance with the National Fire Protection Association Pamphlet #13, throughout the building, a 50% reduction may be granted. In no case shall there be less than 500 gpm provided on site.

No Existing Water System

Where there is no established water system, in the rural areas of Stanislaus County, the following guidelines shall apply: The installation of reservoirs, pressure tanks, elevator tanks, or other fixed systems capable of supplying the required fire flow and/or static source shall be in accordance with the National Fire Protection Association Pamphlet #1231, "Water Supplies for Rural and Suburban Fire Fighting."

Source: Stanislaus County Fire Warden's Office

HAZARDOUS MATERIALS

One area of safety that is gaining more and more attention is the subject of hazardous materials. A great deal of concern has been raised by the media about the disposal of hazardous "waste", such as nuclear waste from reactors. Locally, the California Highway Patrol is considering designating I-5 through Stanislaus County as one of the roads on which transportation of nuclear waste is permitted. Public officials and employees from many disciplines agree that disposal of hazardous waste is a big problem. However, this is a very small part of the potential problem (less than 5%). An even greater potential problem is the subject of hazardous "materials", i.e. chemicals, flammable liquids, etc. that are used throughout the country but are not waste products.

A wide variety of business and industry use hazardous materials in their processes. For example, photograph processors and testing laboratories use a variety of chemicals. These uses, and many others, are permitted to operate in commercial zones with little or no local controls. Industrial plants can, and do, use a variety of hazardous materials such as liquid and gas chlorine (in industrial strength, a spill can result in a gaseous cloud requiring evacuation). The Santa Clara Valley is finding that the supposedly "clean" high-tech, electronic, industries use a variety of hazardous materials in their processing which must be disposed.

Since Stanislaus County is predominantly agricultural, one of the primary uses of hazardous materials is in farming. Chemicals are applied to crops every day throughout the County. Although precautions are taken to prevent danger, mistakes can happen. Overspraying by crop dusters is not uncommon. Unforeseen weather conditions can also cause problems with chemical applications. Last year a chemical was applied to some property near Ceres that required emergency evacuation of a nearby plant.

As the use of hazardous materials increases, public agencies have become concerned about potential problems. The greatest concern is that little information is available indicating the types of materials businesses and industries in any given location were using. Local jurisdictions had the power to adopt disclosure ordinances to require businessmen to report the hazardous materials they used. Adoption of such ordinances was politically difficult since the industries felt disclosure might give away some trade secret and usually fought against adoption of a disclosure ordinance. AB 2185 and AB 2187 were passed this year which will require businesses to disclose what type of hazardous materials they are using. This will greatly increase the ability of local agencies to cope with potential and actual hazards.

If hazardous materials are being used by businesses and industry, they are obviously being transported there by some means, usually by trucks or rail. According to State officials, one out of every seven rail cars in a freight train carries some type of hazardous material. There is presently no way of knowing what proportion of trucks carry such cargo.

Transporting hazardous materials by rail is the best documented means of transporting such cargo. Rail companies keep detailed records of the shipments both on the train and in their offices. If an accident were to occur, the rail company knows exactly what is in every rail car and what its location is on the train. The same is not true of truck transportation.

Although trucks are required to carry placards which indicate by a system of numbers what hazardous substance they are carrying, there can be several complications. First, there is no central office responsible for the load. If an accident occurs on a railroad, the local agency can call the rail company. The rail company can provide both exact information on substances carried and personnel to handle the accident. If there is an accident with a truck, the local agency is usually on its own. Second, someone at the scene must be familiar with the code system in order to determine what type of material is being transported. Both law enforcement and fire department officials are equipped with this information but are hesitant about doing anything because it is relatively easy to make a mistake. Third, an accident could easily occur which obscures the placard, making it impossible for someone approaching the accident to know that hazardous material is involved.

Finally, trucks have much more mobility than trains. They may travel on any roads designated as a truck route. Truck terminals are located throughout the state, many in urbanized areas. Trucks carrying hazardous materials may arrive and be stored on a property without anyone except the operator of the truck terminal being aware of it. If an accident were to occur, such as a fire, the local officials might not have any way of determining what type of hazardous material is involved. Methods exist to require that truck terminal operators provide accurate, up-to-date information about loads parked on the property. There is still nothing that can legally be done to limit parking of trucks along truck routes (a situation that is becoming more and more common) unless parking of all types is prohibited.

Stanislaus County has received funding to purchase a vehicle for use in case of a hazardous materials spill or accident. A team will be trained for dealing with such problems. This approach has worked throughout the State. Problems do not occur frequently enough to warrant the training of permanent personnel in each jurisdiction. The potential impacts of a spill, however, are serious enough to warrant training a team comprised of safety employees to be on call should the need arise. Such a team would be supported by staff of the Environmental Resources and Ag Commissioner's Departments who would provide material identification and disposal evaluation services.

The area of hazardous materials accidents is one which is particularly susceptible to the state-wide liability crisis being experienced by local jurisdictions. Public agencies are finding it impossible to obtain liability insurance through normal carriers. Although there is some interest for jurisdictions to pool their resources and self insure, this concept has not

been in existence very long and local jurisdictions are cautious about using this means of insurance. One of the causes of the insurance crisis is the current interpretation by the courts of the "deep pocket" theory. In addition to awarding substantial settlements in rather unusual cases, the courts are requiring public agencies to pay the full cost of the settlement in cases where the other defendants are unable to do so, even if as little as 1% of the blame belongs to the public agency. Since many individuals do not carry liability insurance in great amounts, cities and counties are being required to pay huge sums for accidents that are generally not their fault. With the passage of Proposition 51 in June 1986, the damages subject to the "deep pocket" theory will be limited to out-of-pocket expenses. The huge awards being granted for "pain and suffering" will be exempt.

Given the current temper of the courts, local agencies are reluctant to get involved in hazardous materials problems. If, in attempting to clean up a spill, something happens to worsen the situation (possibly something that is not the fault of the public agency) the public agency would probably be held liable. Although the public agency may be attempting to aid the situation, there is no guarantee of immunity. It is easier to not get involved in the first place. Recently, this has resulted in some "buck-passing" on the part of agencies called in to handle a hazardous materials accident. Until there is some type of action taken at the State level to limit the liability of a local jurisdiction, there is not much that can be done locally to eliminate this problem.

Policy 13 addresses hazardous materials.

OTHER SAFETY HAZARDS

Airports

Airplanes and the associated ground facilities (airports, air strips) cause some safety hazards. Approach and take-off patterns need to be kept free from incompatible uses. Incompatible uses that cause safety problems range from dwellings to high structures. A malfunction causing a crash on landing or take-off would cause more loss of life in a residential area than it would in an agricultural area. It would also be easier for a pilot to execute an emergency landing in an open area, uncluttered by houses. Tall structures, such as buildings and antennas, are hazardous to the airplanes as well.

Stanislaus County has an Airport Land Use Commission (ALUC) which reviews land use proposals within the approach patterns of airports (not air strips). The Commission bases its determinations on whether or not the proposed development meets compatibility criteria identified in the adopted ALUC plan.

Location of air strips is governed by the County Zoning Ordinance and, in some cases, the State. The County has an adopted policy regarding the siting of air strips that requires approach patterns to be free from development. This, however, is done mainly to protect existing development from the impacts of having an air strip nearby. There are no regulations preventing development after an air strip is already in existence although environmental concerns under CEQA (California Environmental Quality Act) could be used if discretionary approval is required.

Current County regulations permit communications antennas in agricultural areas. Findings have to be made in order to approve such a use which include the finding that the antenna will not be detrimental to the health, safety or general welfare of people or property in the area. In the past the safety of crop dusters and their ability to operate effectively has not been considered. The Zoning Ordinance could be amended to require that this type of consideration be included.

Policies 10, 11 and 12 address airports and air strips.

Streets and Roads

Streets and roads can be a safety hazard in several ways. The most obvious hazard occurs when a road is not adequately maintained. Potholes and other uneven surfaces can cause or contribute to accidents. There are, however, other safety hazards that are not as obvious.

Overcrowding of roads, slightly off-set intersections and other such design problems can be hazardous. The Circulation Element of the

General Plan proposes roads of sufficient width to handle anticipated future traffic, however few of the roads actually exist at the proposed width. As development occurs, the County requires developers to pay for widening roads. In addition the County uses its various funding sources to improve roads that are not adjacent to development (and therefore not improved by the developer) but are still becoming unsafe from overcrowding. Unfortunately funding is not always adequate to do as much as needs to be done. The County also carefully reviews proposed developments to ensure that driveways are in the safest possible location and that intersections do not consist of off-set streets. Cul-de-sacs and street segments are of limited length so that access for emergency vehicles is not restricted should the road be blocked.

The type of vehicles on the roads is another possible safety hazard. For example, semi-trucks on residential streets could cause safety problems. This is one of the reasons the County designates certain streets as truck routes and prohibits trucks and truck parking on others.

The minimum width and location of roads also affects access by emergency vehicles. Police, fire and ambulance vehicles need to have access to all parts of the County. Roads must go to the places to be served and must be of sufficient width to handle these often-large vehicles.

Policy 8 addresses road hazards.

Other Hazards

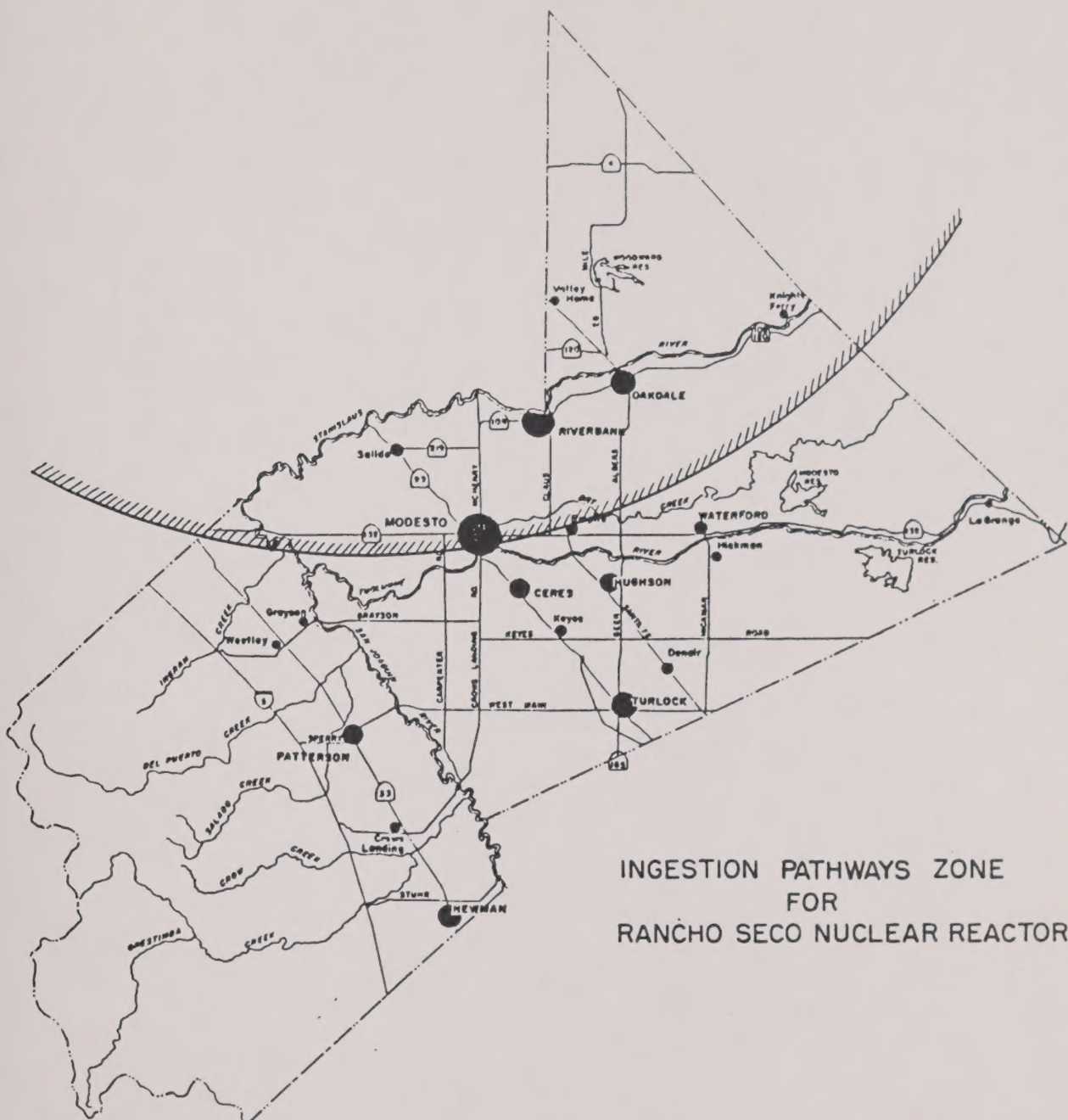
A variety of other safety hazards can occur, often in more urbanized areas of the County. As a largely agricultural county, canals are a major delivery route for irrigation water. As urbanization occurs and an area becomes more populated, the chances for an accident in a canal (such as a drowning) increases. In order to combat this problem, some jurisdictions require fencing between the canal and urban development. This measure reduces the danger.

Crime also becomes more of a problem with urbanization. Street lights in residential areas tend to decrease crime. Parks can be designed to be attractive but not provide numerous areas that are difficult for police to patrol. Commercial areas can be well-lit and designed to provide police with adequate view of potential criminals. All of these measures can be accomplished through the normal permit process.

In the predominantly agricultural areas, erosion can loosen dirt which may become airborne and reduce visibility to the point of being dangerous. More detailed discussions of this hazard are found in the Conservation/Open Space Element (Chapter 3). Another hazard in the less urbanized area comes from materials, often sand and gravel, being blown off uncovered vehicles as they transport the material from the collection points to the distribution centers. This is of particular concern on Highway 132 where there are many sand and gravel excavation operations. A County ordinance requiring the covering of loads would significantly reduce this hazard.

Although the County has no nuclear reactors within its boundaries, part of it is within the Ingestion Pathways Zone (IPZ) of the Rancho Seco reactor near Sacramento. The map on page 266 depicts the location of this zone. If Rancho Seco were to experience a "melt-down" the northern portion of the County would be affected. Although there would be little effect from the radiation on humans, no food or water from this area could be eaten. "Ingestion" of plants, animals (or their by-products such as milk) could be hazardous. The County Office of Emergency Services is coordinating disaster planning with their State counter-part. With the closing of Rancho Seco and the reported problems with its reopening, this should not be a problem for some time.

Policies 6 and 8 address other hazards.



U.C. BERKELEY LIBRARIES



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